

THE APPLICATION OF SCIENCE  
TO INDUSTRY

SOUVENIR OF THE  
CONGRESS OF THE  
UNIVERSITIES OF THE EMPIRE  
LONDON  
1912

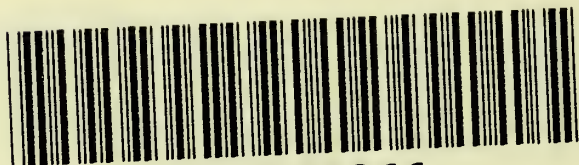


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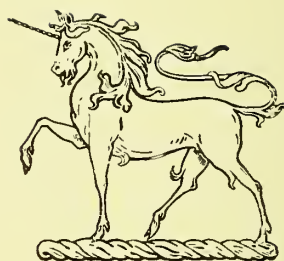
LONDON IN THE THIRTEENTH CENTURY  
FROM A MAP



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“We advocate education, not merely to make the man the better workman, but the workman the better man.”

*The Use of Life.*—LUBBOCK.



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With the Compliments of  
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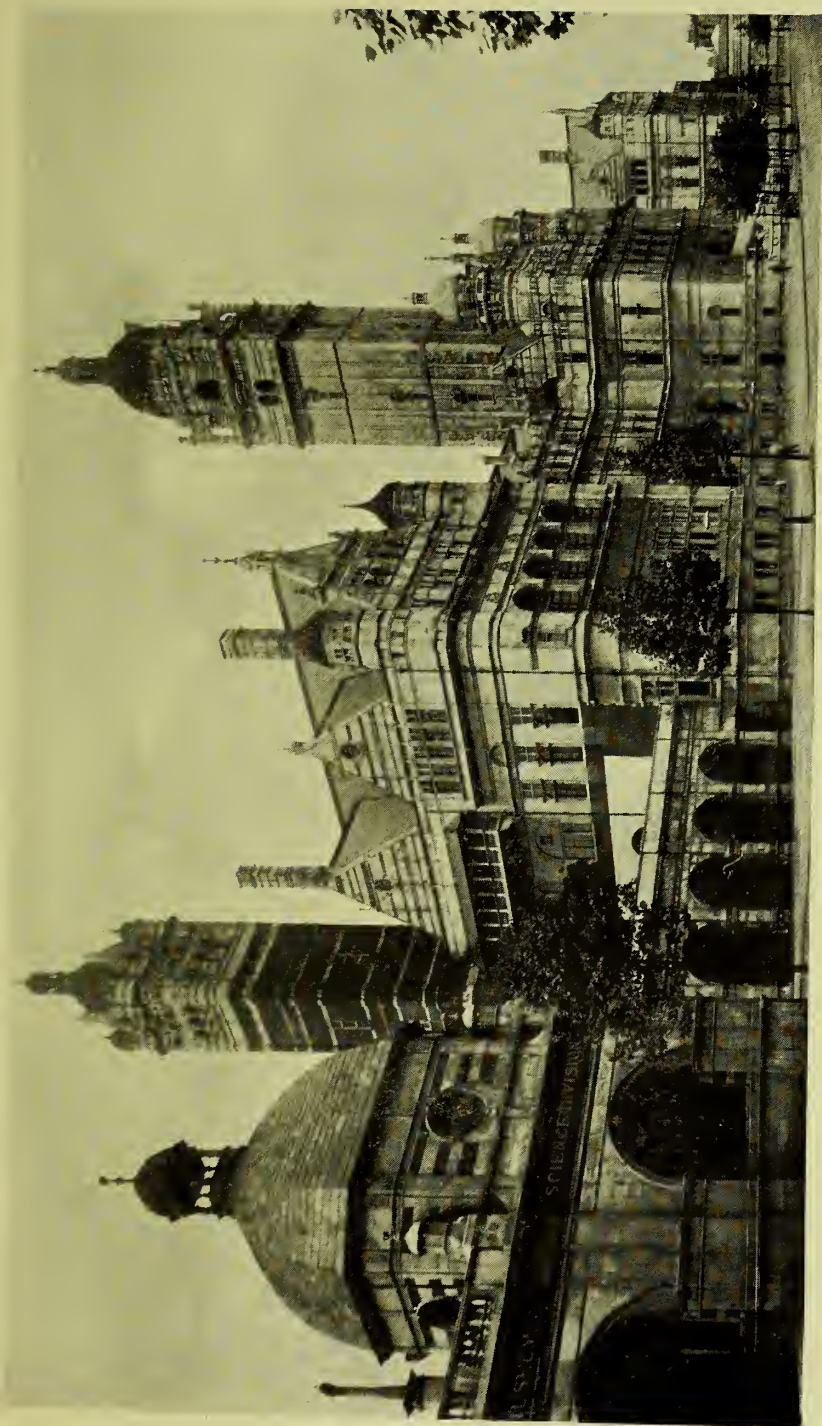
NEW YORK	MONTREAL	SYDNEY	CAPE TOWN
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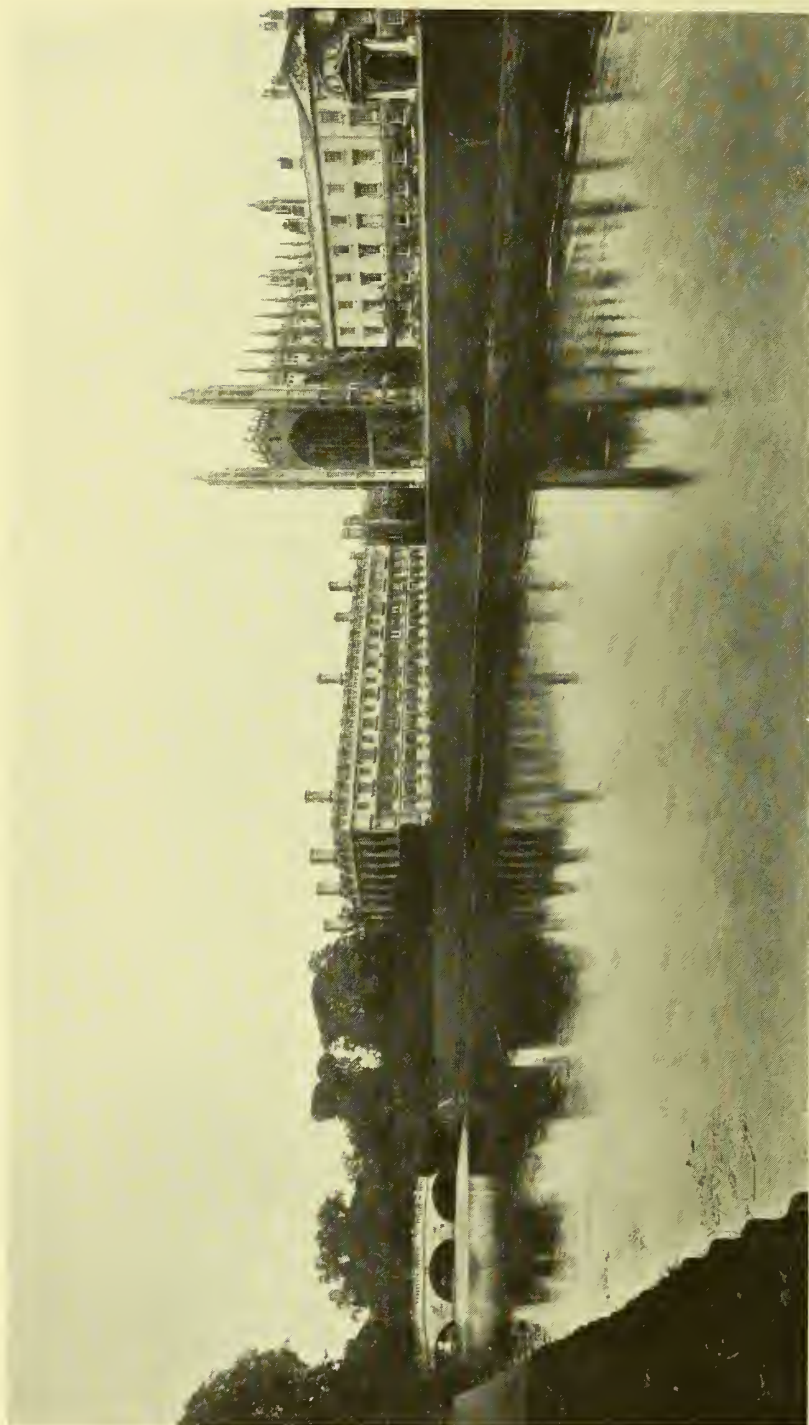
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# THE UNIVERSITY OF LONDON (IMPERIAL INSTITUTE)

VISITOR :—His Majesty the King in Council.  
 CHANCELLOR :—The Right Hon. the Earl of Rosebery and Midlothian K.G., K.T., P.C., F.R.S.  
 VICE-CHANCELLOR :—Sir William Job Collins, M.D., F.R.C.S., M.S., B.Sc.  
 PRINCIPAL :—Sir Henry Alexander Miers, M.A., D.Sc., F.R.S.  
 Representative in Parliament :—Sir Philip Magnus, M.P., B.A., B.Sc.  
 Representative on General Medical Council :—Frederick Taylor, M.D., F.R.C.P., M.R.C.S.  
 Number of Students who matriculated in 1910-11—4255.



# THE UNIVERSITY OF CAMBRIDGE (KING'S AND CLARE COLLEGES)

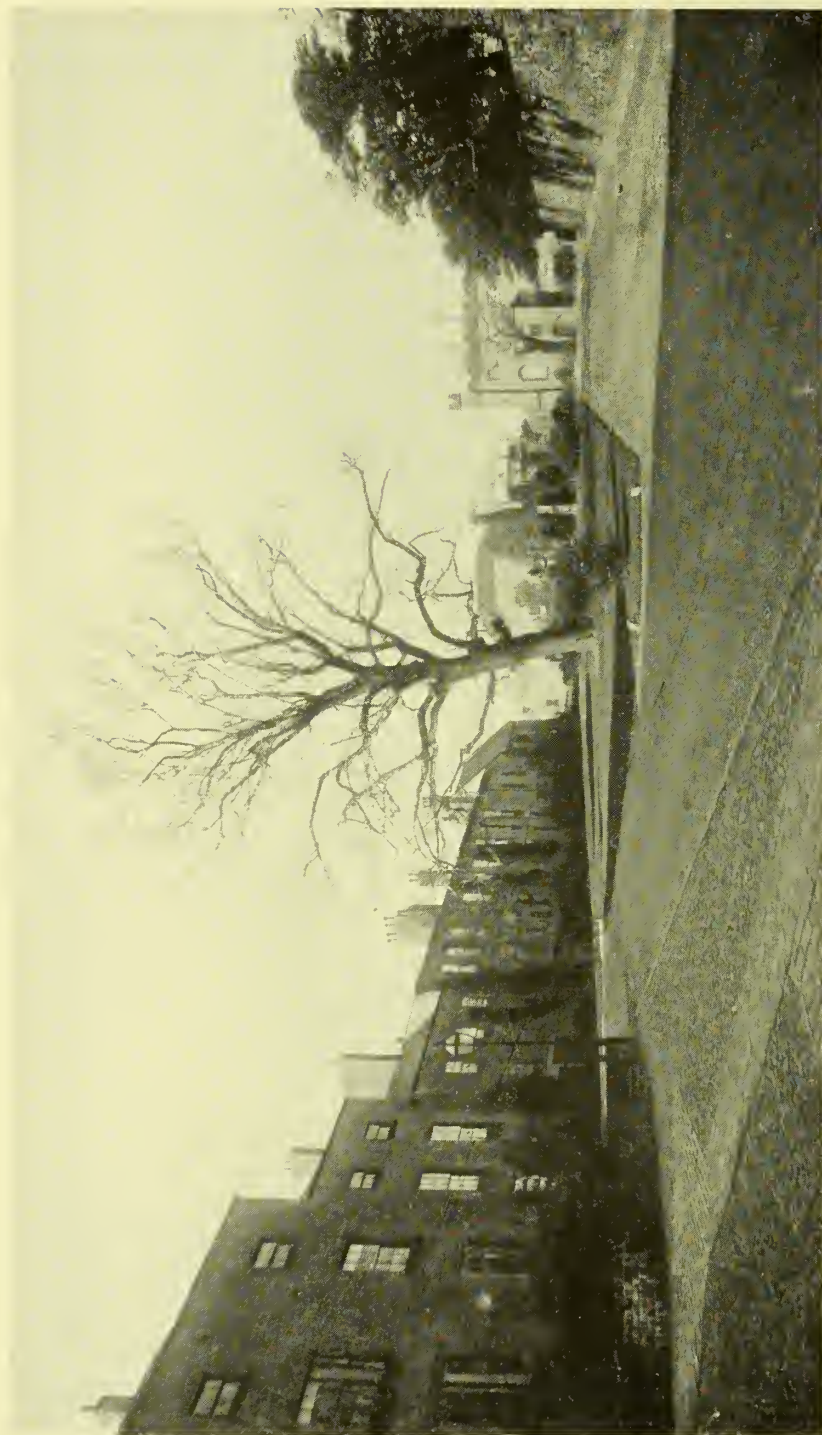
CHANCELLOR :—The Right Hon. Lord Rayleigh, P.C., O.M., Sc.D., F.R.S. (Trinity Coll.).  
 HIGH STEWARD :—The Right Hon. Lord Walsingham, M.A., LL.D., F.R.S. (Trinity Coll.).  
 VICE-CHANCELLOR :—R. F. Scott, M.A. (St. John's Coll.).  
 REGISTRAR :—J. N. Keynes, M.A., Sc.D. (Pembroke Coll.).  
 Number of Students who matriculated in 1910—3726.





THE UNIVERSITY OF OXFORD (FROM THE MAGDALEN TOWER)

CHANCELLOR :—The Right Hon. Earl Curzon of Kedleston, P.C., G.C.S.I., G.C.I.E., Hon D.C.L. (All Souls Coll.).  
 HIGH STEWARD :—The Right Hon. the Earl of Halsbury, P.C., M.A., F.R.S., Hon. D.C.L. (Merton Coll.).  
 VICE-CHANCELLOR :—C. B. Heberden, M.A., Hon. D.C.L. (Principal of Brasenose Coll.).  
 REGISTRAR OF THE UNIVERSITY :—C. Leudesdorf, M.A. (Pembroke Coll.).  
 Number of Students who matriculated in 1909-10—950.



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### THE UNIVERSITY OF DURHAM (DURHAM COLLEGE)

VISITOR:—The Bishop of Durham.

CHANCELLOR:—Very Rev. George William Kitchen, D.D., Dean of Durham.

VICE-CHANCELLOR:—F. B. Jevons, M.A., D.Litt., Principal of Hatfield Hall.

REGISTRAR:—W. K. Hilton, M.A.

Number of Students attending Lectures in 1911—233 in Durham, 1600 in Newcastle.





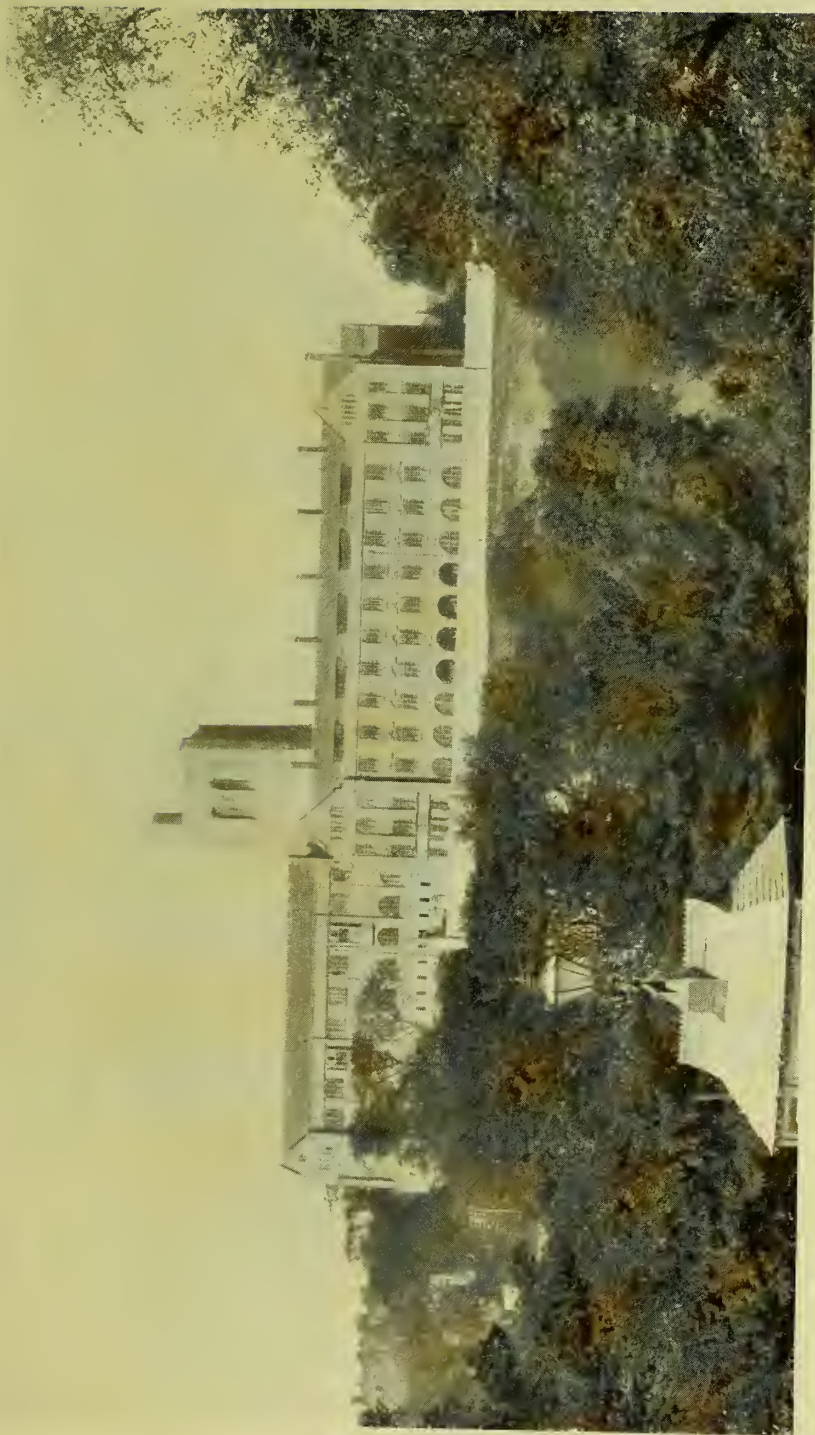
THE UNIVERSITY OF BIRMINGHAM  
 CHANCELLOR :—The Right Hon. Joseph Chamberlain, P.C., M.P., F.R.S.  
 VICE-CHANCELLOR :—C. G. Beale, M.A.  
 PRINCIPAL :—Sir Oliver Lodge, D.Sc., LL.D., F.R.S.  
 VICE-PRINCIPAL AND REGISTRAR :—Professor R. S. Heath, M.A., D.Sc.



# VICTORIA UNIVERSITY OF MANCHESTER

VISITOR :—His Majesty the King.  
 CHANCELLOR :—The Right Hon. Viscount Morley of Blackburn, P.C., O.M., M.A., F.R.S.  
 VICE-CHANCELLOR :—Sir A. Hopkinson, K.C., M.A., LL.D.  
 REGISTRAR :—E. Fiddes, M.A.  
 Number of Students who attended Lectures in 1909-10—1699.





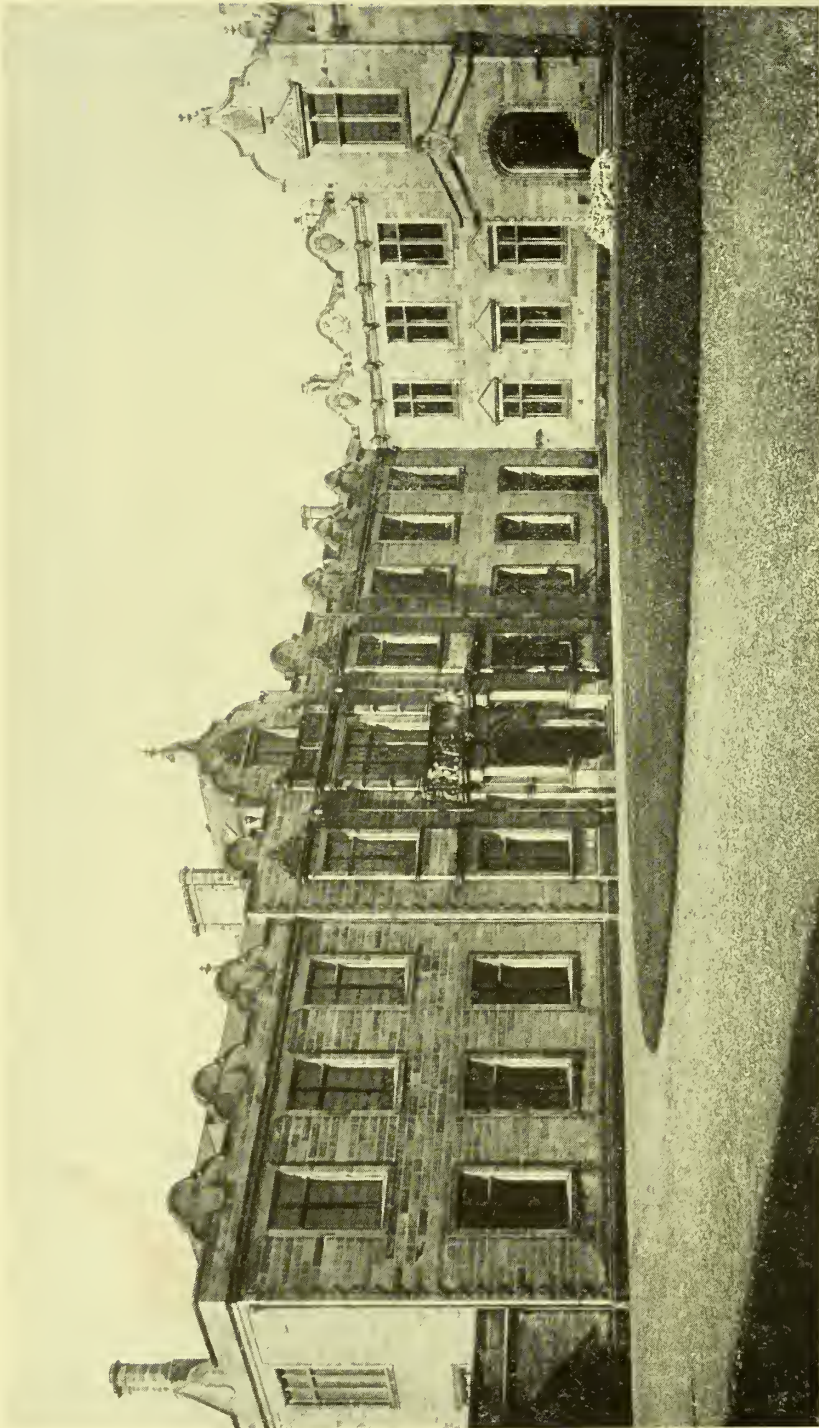
THE UNIVERSITY OF WALES (UNIVERSITY COLLEGE, BANGOR)

CHANCELLOR :—His Majesty the King.

SENIOR DEPUTY CHANCELLOR :—The Right Hon. Lord Kenyon, K.C.V.O.

VICE-CHANCELLOR and PRINCIPAL :—Sir H. R. Reichel, M.A., LL.D.

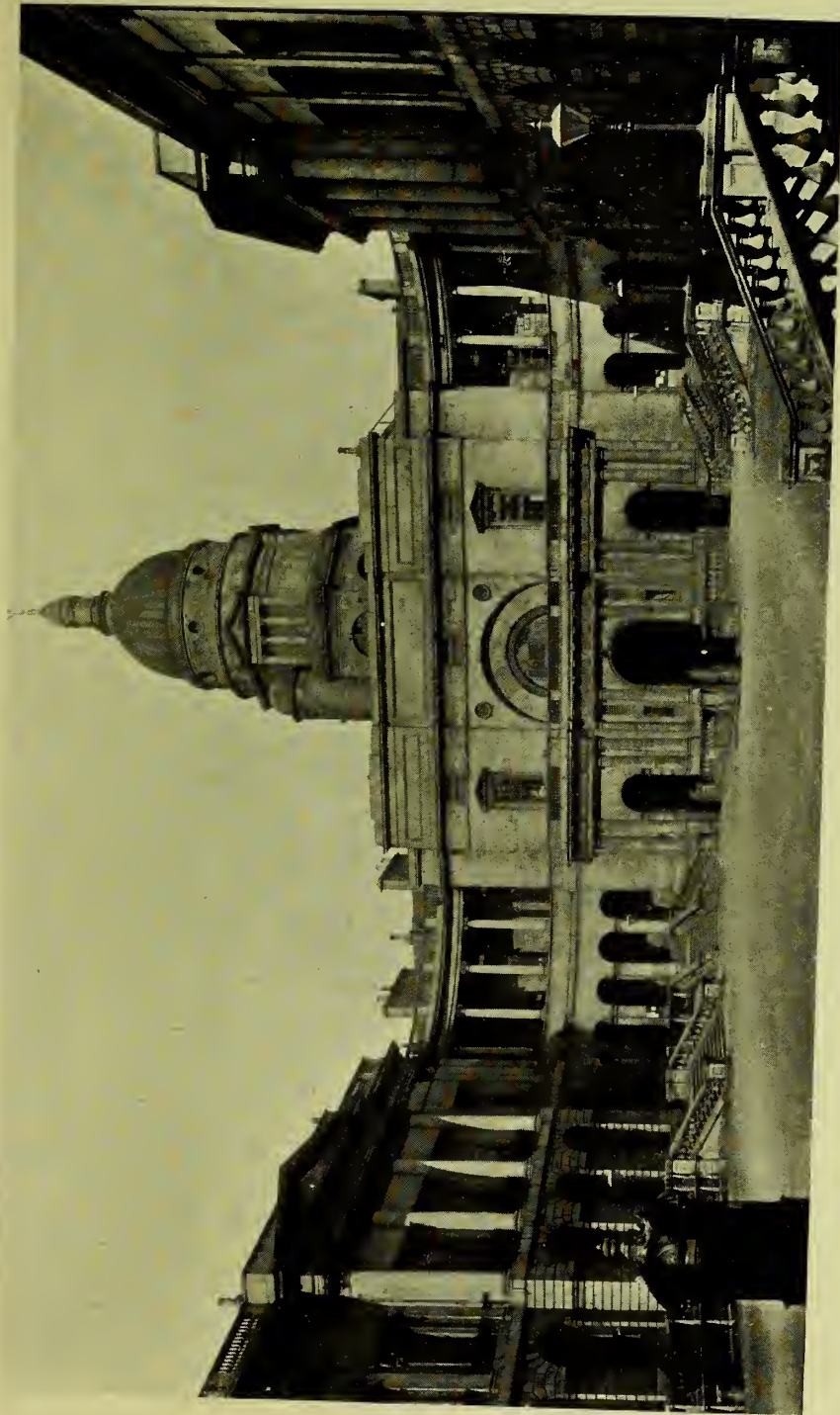
REGISTRAR :—J. Mortimer Angus, M.A.



THE UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE)  
(Founded 1411)

CHANCELLOR :—The Right Hon. Lord Balfour of Burleigh, K.T., P.C., G.C.M.G.  
VICE-CHANCELLOR AND PRINCIPAL :—Sir James Donaldson, M.A., D.D., LL.D.  
RECTOR :—The Right Hon. the Earl of Rosebery and Midlothian, K.G., K.T., P.C., F.R.S.  
REGISTRAR AND SECRETARY :—Andrew Bennett.





UNIVERSITY OF EDINBURGH  
(Founded 1582)

CHANCELLOR :—The Right Hon. A. J. Balfour, P.C., M.P., M.A., LL.D.  
 RECTOR :—The Right Hon. the Earl of Minto, K.G., P.C., G.C.M.G., G.C.S.I., G.C.I.E., LL.D.  
 VICE-CHANCELLOR AND PRINCIPAL :—Sir William Turner, K.C.B., D.Sc., M.B., F.R.S., etc.  
 SECRETARY OF SENATUS :—Professor Sir Ludovic J. Grant, Bt., LL.D.



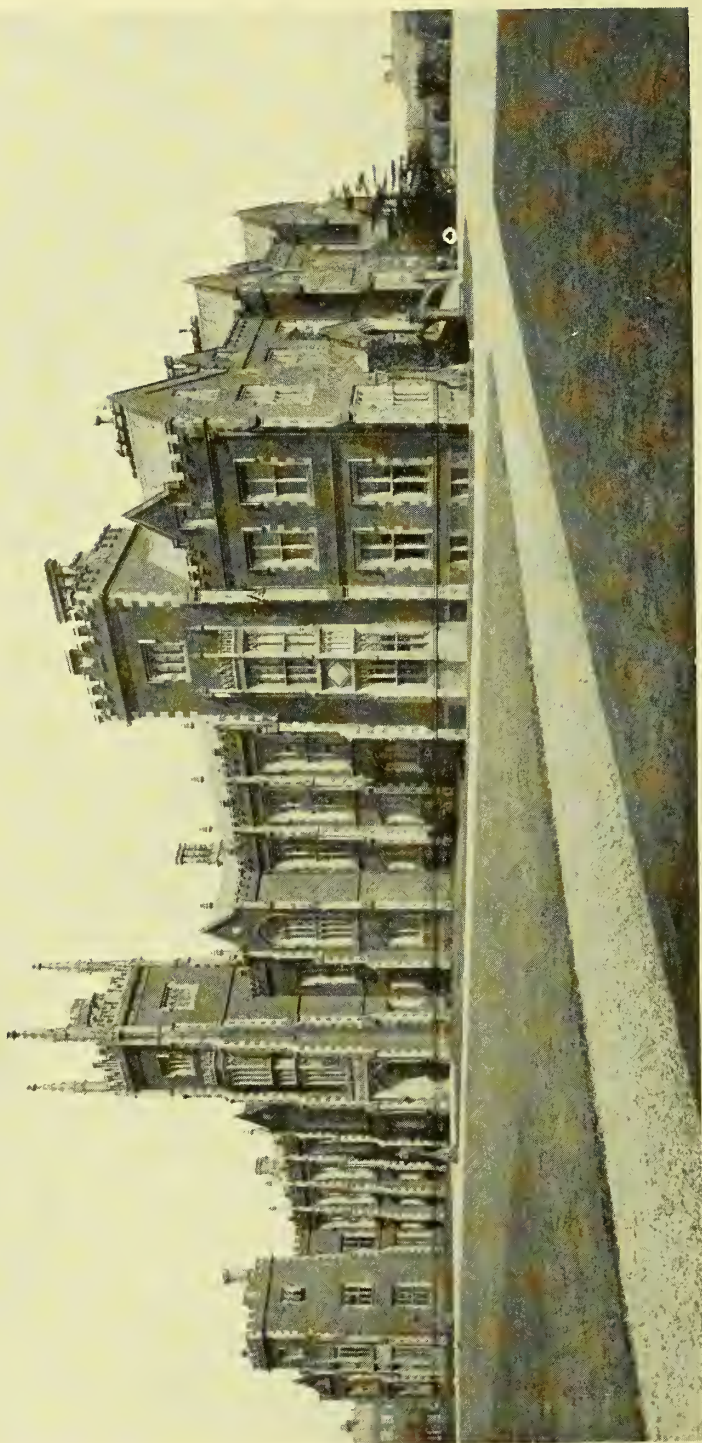
UNIVERSITY OF GLASGOW  
(Founded 1450)

CHANCELLOR :—The Right Hon. the Earl of Rosebery and Midlothian, K.G., K.T., P.C., F.R.S.  
VICE-CHANCELLOR AND PRINCIPAL :—Sir Donald MacAlister, K.C.B., M.A., M.D., LL.D.  
RECTOR :—The Right Hon. Earl Curzon of Kedleston, P.C., G.C.S.I., G.C.I.E.  
Number of Students attending Lectures about 2800 including 700 women.





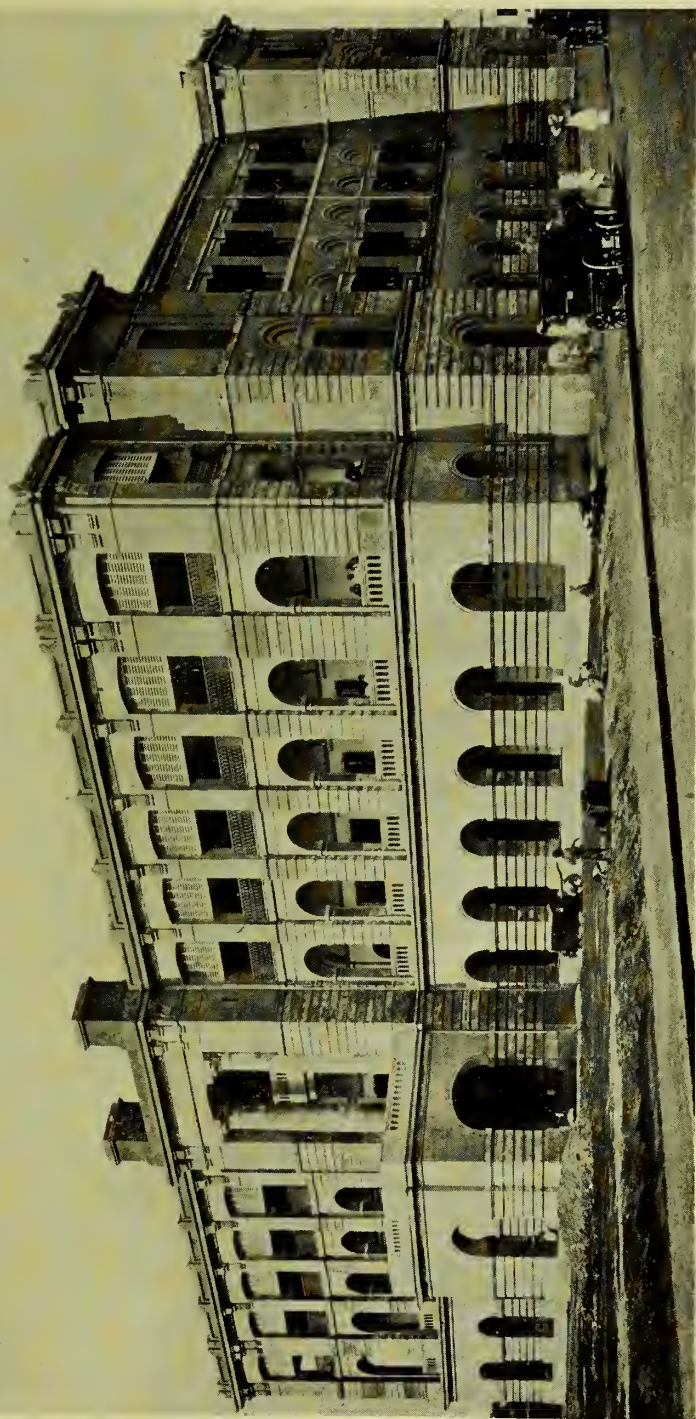
THE UNIVERSITY OF DUBLIN (TRINITY COLLEGE)  
 CHANCELLOR:—The Right Hon. Viscount Iveagh, K.P., G.C.V.O., F.R.S.  
 VICE-CHANCELLOR:—The Right Hon. Dodgson Hamilton Madden, P.C., M.A. LL.D.  
 PROVOST:—Anthony Traill, LL.D., M.D., M.Ch.  
 REGISTRAR OF THE BOARD AND SENATE:—Robert Velverton Tyrrell, Litt.D.  
 Number of Students about 1000.



# THE QUEEN'S UNIVERSITY OF BELFAST

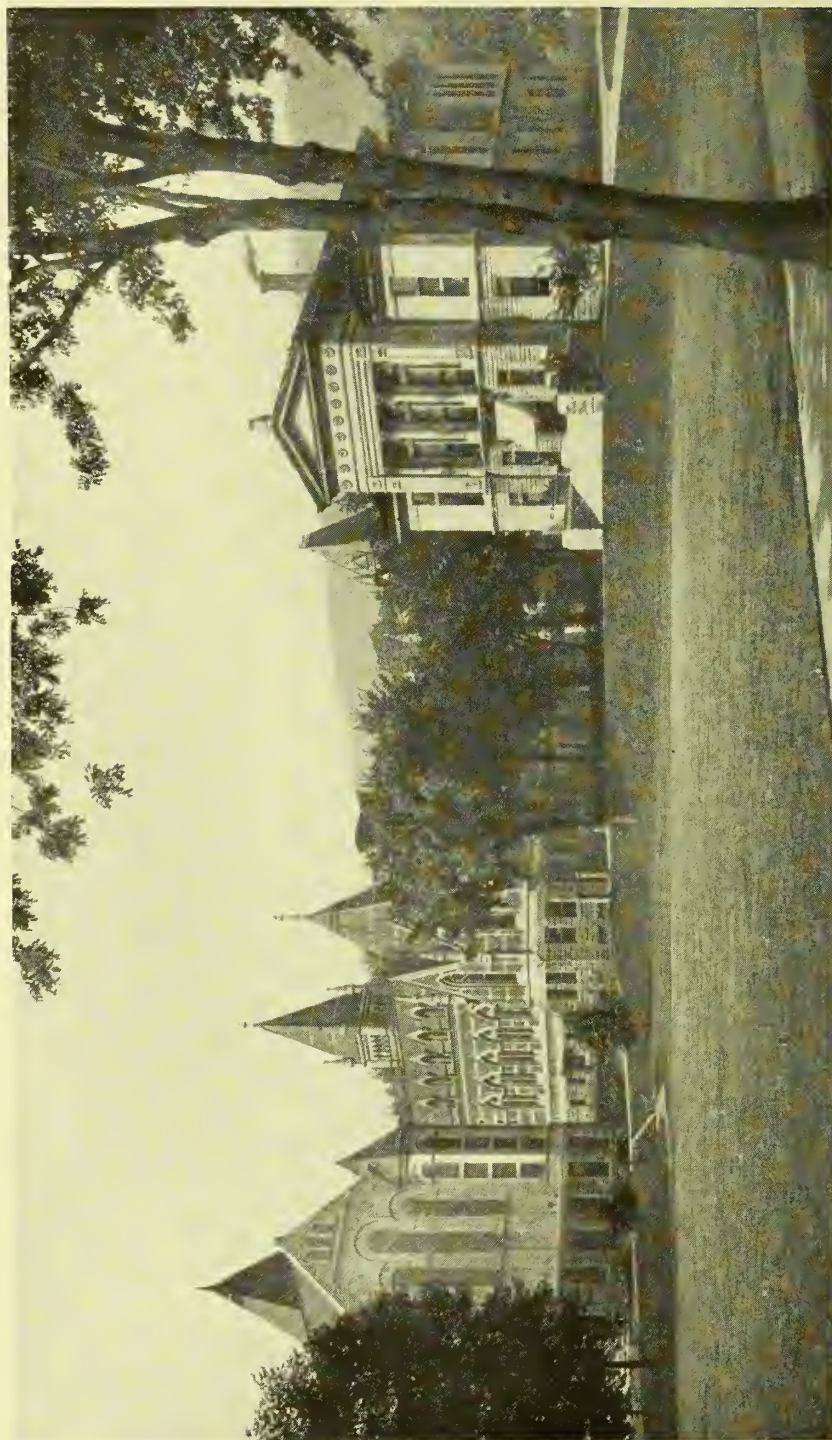
CHANCELLOR:—The Right Hon. the Earl of Shaftesbury, K.P., K.C.V.O.  
 VICE-CHANCELLOR AND PRESIDENT:—The Rev. Thomas Hamilton, M.A., D.D.  
 SECRETARY:—John M. Finnegan, B.Sc.  
 REGISTRAR:—Johnson Symington, M.D., F.R.S.





UNIVERSITY OF CALCUTTA, INDIA  
(Founded 1857)

CHANCELLOR:—His Excellency the Viceroy and Governor-General of India, The Right Hon. Lord Hardinge of Penshurst, P.C., G.C.B., G.C.M.G., G.C.V.O., G.M.S.I., G.M.I.E.  
VICE-CHANCELLOR:—The Hon. Mr. Justice Asutosh Mookerjee Saraswati, M.A., D.L., F.R.A.S., F.R.S.E.  
REGISTRAR AND LIBRARIAN:—G. Thibaut, C.I.E., M.A., Ph.D.



McGILL COLLEGE AND UNIVERSITY, MONTREAL  
(Founded 1821)

PRESIDENT AND CHANCELLOR :—The Right Hon. Lord Strathcona and Mount Royal, P.C., G.C.M.G., G.C.V.O., F.R.S.  
VICE-CHANCELLOR AND PRINCIPAL :—William Peterson, C.M.G., M.A., LL.D.  
VICE-PRINCIPAL :—Chas. E. Moyse, LL.D.  
Number of Students in 1910-11—2426.





[By courtesy of the High Commissioner

THE UNIVERSITY OF QUEEN'S COLLEGE, KINGSTON, ONTARIO

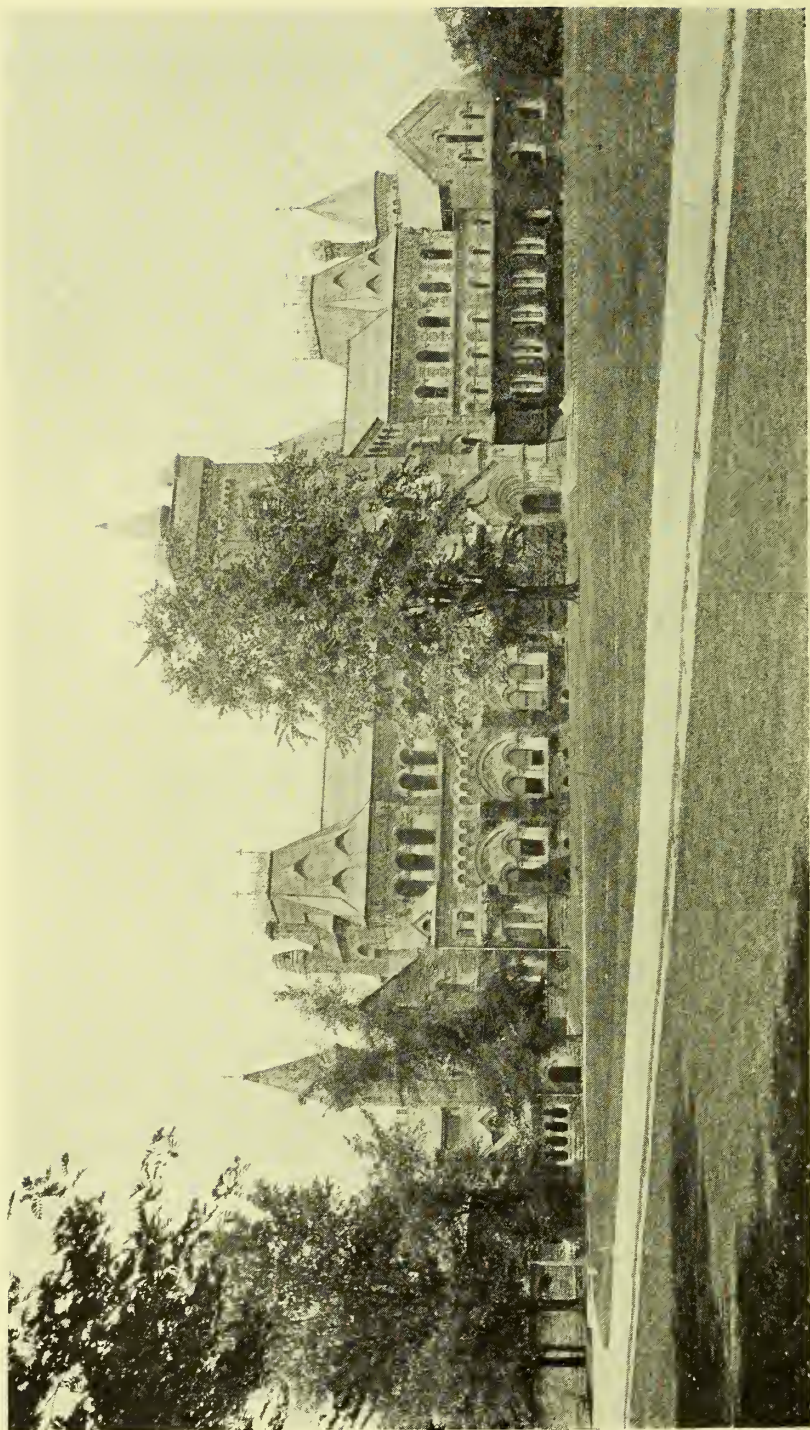
CHANCELLOR :—Sir Sandford Fleming, K.C.M.G., LL.D., M.I.C.E.

VICE-CHANCELLOR AND PRINCIPAL :—Very Rev. Daniel Miner Gordon, D.D., LL.D.

VICE-PRINCIPAL :—John Watson. REGISTRAR :—George Y. Chown, B.A.

Number of Students attending Lectures in 1910-11—1612.





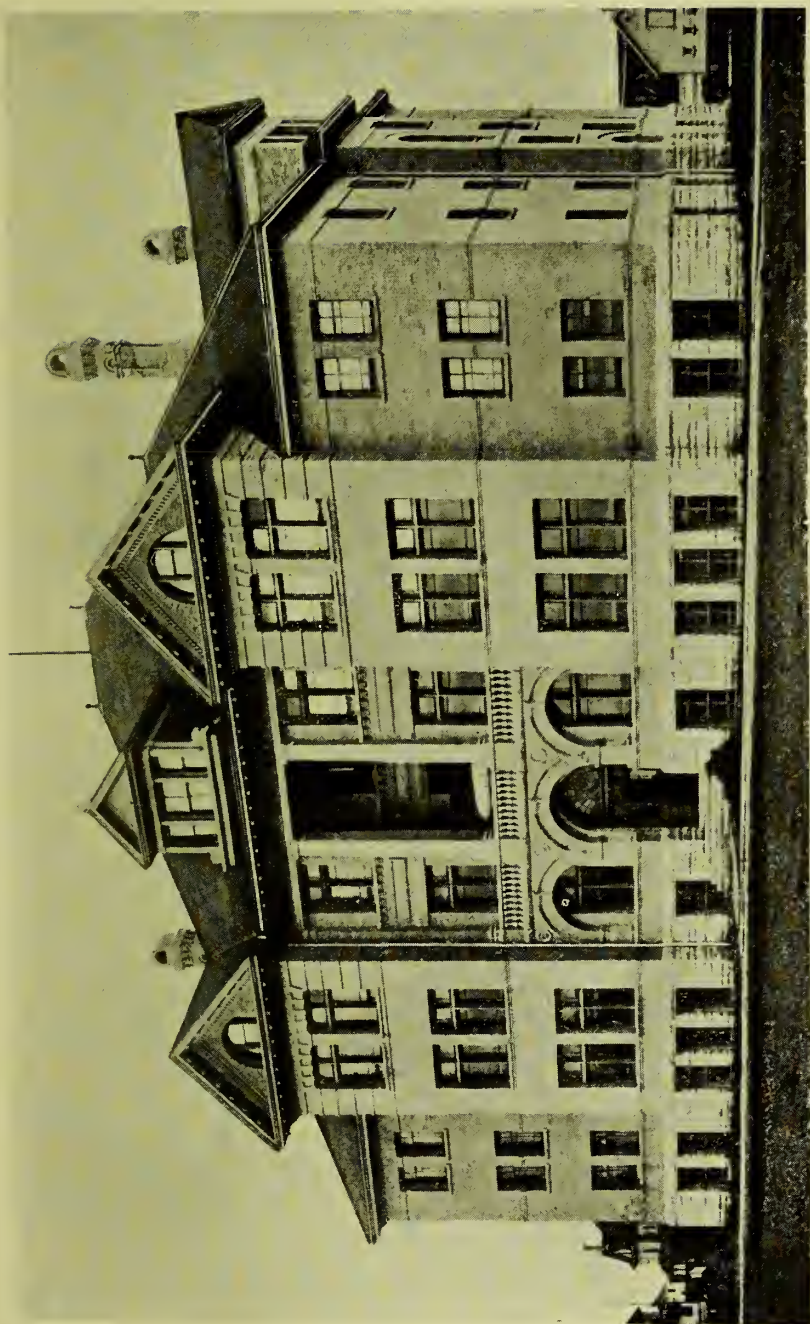
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THE UNIVERSITY OF TORONTO, CANADA

PRESIDENT :—Robert Alexander Falconer, C.M.G., Litt.D., LL.D., D.D.

VICE-PRESIDENT :—Robert Ramsay Wright, M.A., B.Sc. (Edin.), LL.D. (Tor.), F.Z.S., F.R.S.C.

REGISTRAR :—James Brebner.



[By courtesy of the High Commissioner]

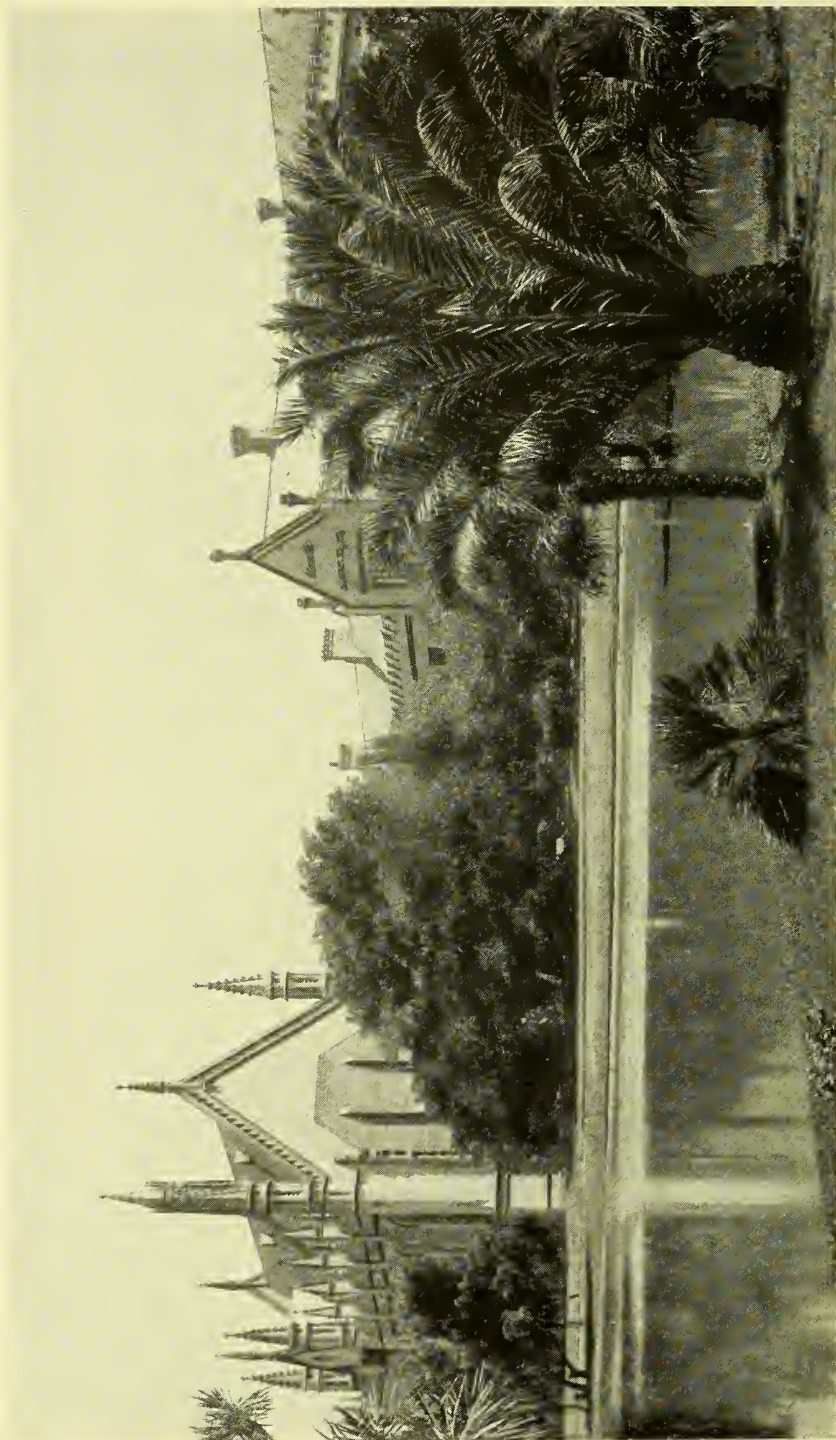
# THE UNIVERSITY OF MANITOBA

CHANCELLOR :—The Most Rev. S. P. Matheson, D.D., Archbishop of Rupert's Land.

VICE-CHANCELLOR :—Hon. Chief Justice Dubuc, LL.D.

REGISTRAR :—W. J. Spence.



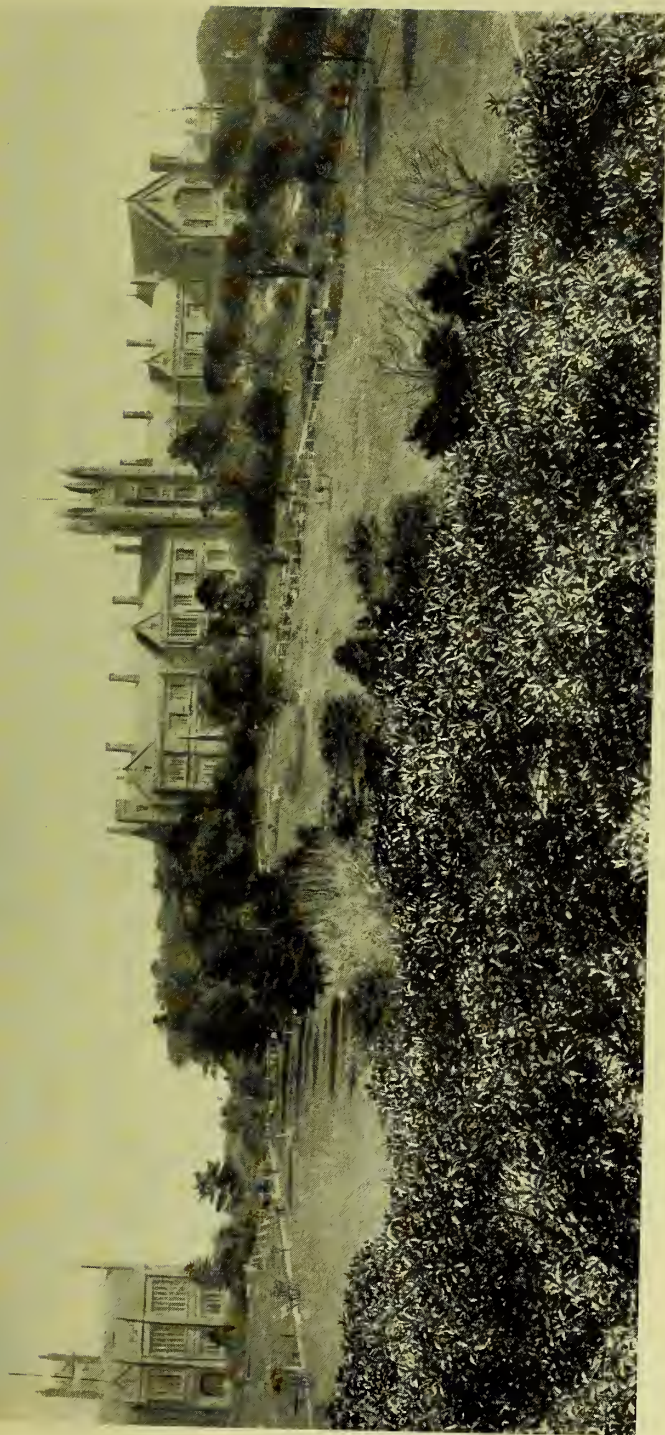


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UNIVERSITY OF MELBOURNE, VICTORIA  
(Founded 1853)

CHANCELLOR:—The Hon. Sir John Madder, G.C.M.G.  
VICE-CHANCELLOR:—Dr. John Henry MacFarland.  
REGISTRAR:—Joseph Procter Bainbridge  
Number of Students attending Lectures, 1911 1170



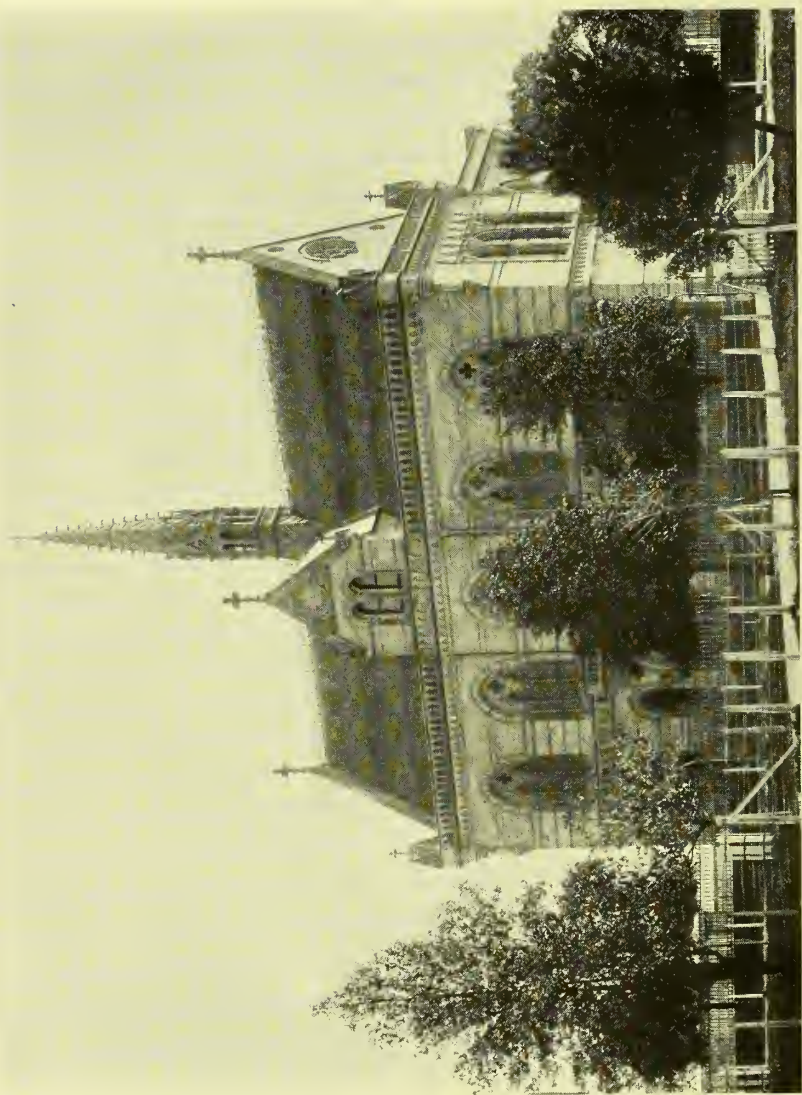


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# UNIVERSITY OF SYDNEY, N.S.W.

(Found d 1850)

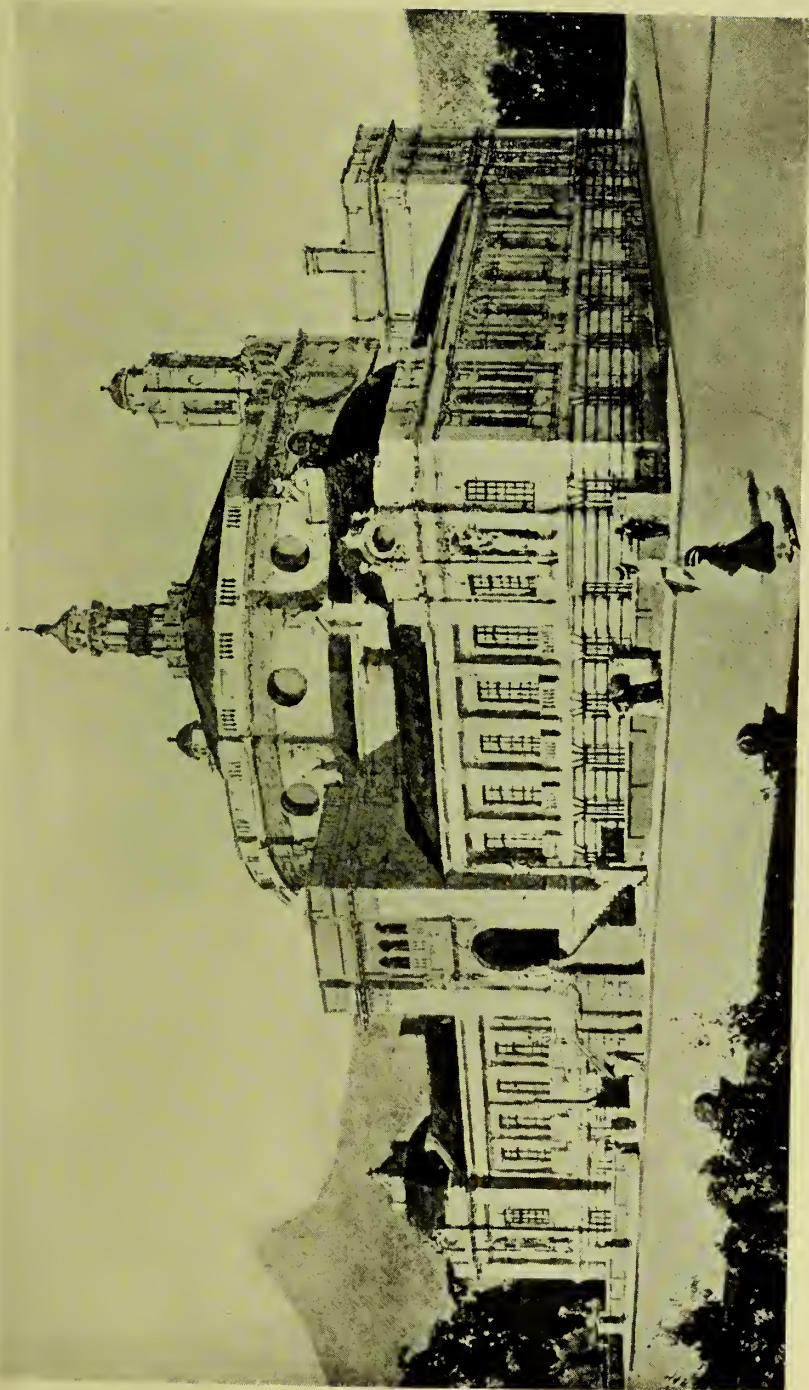
CHANCELLOR:—The Hon. Sir Henry Normand MacLaurin, M.A., M.D., LL.D., M.L.C.  
 VICE-CHANCELLOR:—His Honour Judge Backhouse.  
 REGISTRAR AND LIBRARIAN:—H. E. Barff.  
 Number of Students attending Lectures in 1910-11—1342.



UNIVERSITY OF ADELAIDE, SOUTH AUSTRALIA  
(Founded 1872)

CHANCELLOR :—The Right Hon. Sir Samuel James Way, Bt., P.C., D.C.L., LL.D., Lieutenant-Governor and  
VICE-CHANCELLOR :—William Barlow, B.A., LL.D.  
REGISTRAR :—Charles Reynolds Hodge.  
Number of Students attending Lectures in 1910—563.





THE UNIVERSITY OF THE CAPE OF GOOD HOPE  
CHANCELLOR :—His Majesty the King.  
VICE-CHANCELLOR :—The Hon. Sir Charles Abercrombie Smith, M.A.  
REGISTRAR :—W. Thomson, M.A., B.Sc., LL.D.





PORTION OF FRONTAGE  
BURROUGHS WELLCOME & CO.'S CHIEF OFFICES, LONDON  
Corner of Holborn Viaduct and Snow Hill  
facing Holborn Viaduct Station  
*See Map No. 2 at end*

THE WORK OF  
BURROUGHS WELLCOME & CO.

FROM the time of the founding of the firm, scientific advance has been steady and continuous. The keynote of this success lies in the firm's own original work, conducted under the most favourable conditions, as well as their ready recognition of all forward movements in scientific research, and adaptation of the results to the methods of modern production.

Keynote of  
success

"The rule of thumb is dead and the rule of science has taken its place"

"Science and Industry" has been the guiding motto of B. W. & Co. from the first. They have aimed at attaining and maintaining the highest possible degree of excellence in the products they issue. By keeping abreast of research work, and by promptly adopting the most scientific modern methods, they have not only kept pace with the latest developments in medicine and pharmacy, but have been pioneers in the introduction of some of the most notable agents employed in modern medicine, and have contributed largely to the great advances of the times.

"Science and  
Industry"

Patient and persistent research\* by a staff of chemical, pharmaceutical and physiological experts has yielded fruitful results. Not only has the firm satisfied the highest requirements of physicians by the purity, reliability and scientific precision of the products, but it has met the needs of conscientious pharmacists who pride themselves on the *supreme* quality of everything they dispense.

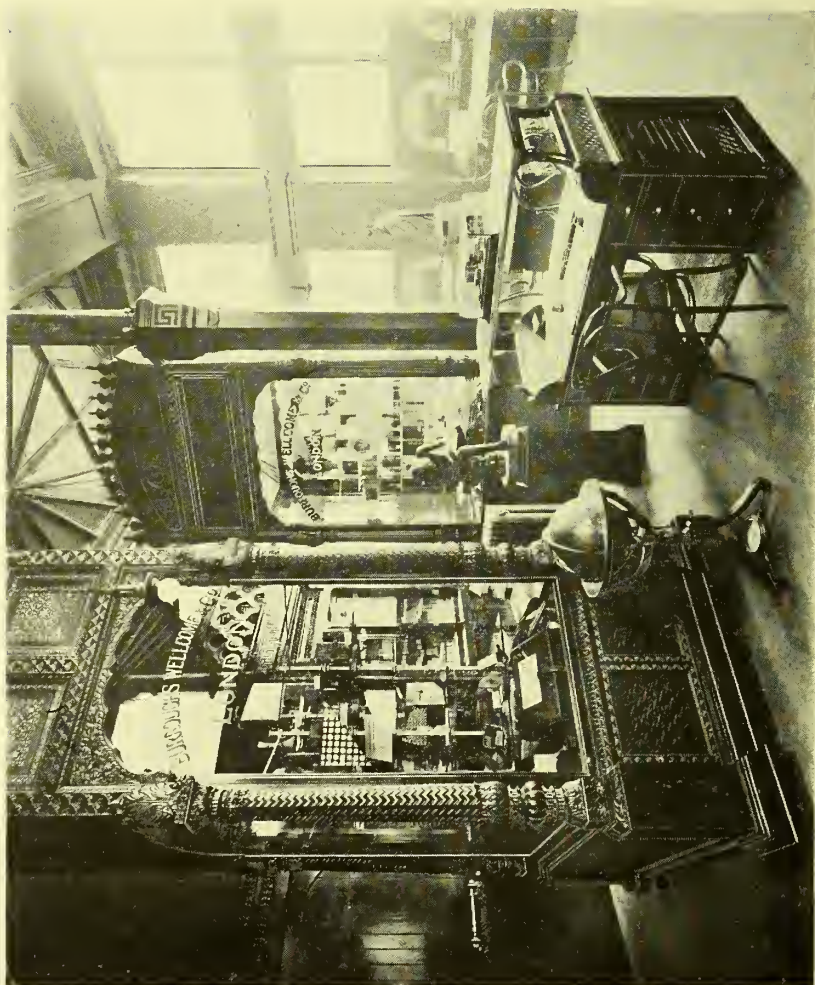
Results of  
scientific  
research

To supply medicaments characterised by purity, accuracy, uniformity and reliability has been the firm's policy from

---

\* Research pioneered by Burroughs Wellcome & Co. many years ago is still continued in their works by a highly-qualified staff. The Wellcome Chemical Research Laboratories, King Street, London, and the Wellcome Physiological Research Laboratories, Brockwell Hall, Herne Hill, London, are Institutions conducted separately and distinctly from the business of Burroughs Wellcome & Co., and are under separate and distinct direction, although in these two Institutions a large amount of important scientific work is carried out for the firm.

INTERIOR  
OF  
PORTION  
OF  
BURROUGHS WELLCOME  
& CO.'S  
CHIEF OFFICES  
LONDON





its earliest days. This has been achieved by devising new appliances, by employing only the most scientific methods and by conducting the various stages of manufacture under the direct supervision and control of specially-trained and qualified pharmacists and other experts. High appreciation has been accorded by physicians and pharmacists throughout the world to the "WEAPONS OF PRECISION" created by the firm. Untiring, strenuous endeavour and vast expenditure have been required to attain these successful results.

"Weapons of Precision"

#### WORKING IMPERIALLY

Mr. Joseph Chamberlain has taught the nation to think Imperially—Burroughs Wellcome & Co. work Imperially. It has been the special ambition of this firm to win back to England by actual merit some of the lost industries snatched away from the country in recent years by alert, enterprising rivals of other lands, who wisely and well apply science to their industries, and slumber not. B. W. & Co., never content with the time-honoured "rule-of-thumb" methods, have in a considerable measure gratified their ambition. Particularly in the production of Fine Medicinal Chemicals, including the powerful alkaloids, glucosides and other active principles now so largely replacing the use of bulky and nauseous crude natural drugs, thus securing greater certainty and uniformity of potency.

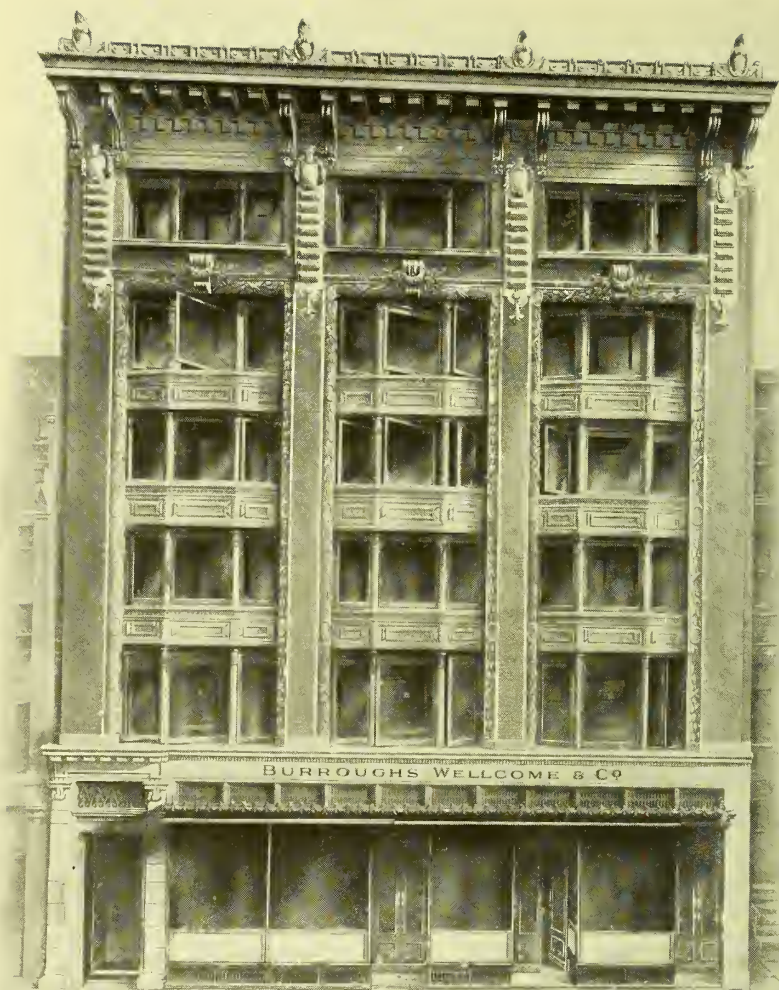
Bringing back to England lost industries

In this work it has been the aim not only to equal but to surpass foreign production, and the results speak for themselves.

#### PIONEERS IN NEW DRUGS

The firm has pioneered the introduction of many new and valuable natural drugs, notable amongst which may be mentioned Strophanthus, or Kombé, the powerful African arrow poison which has proved so useful in certain heart disorders. Science and enterprise have in this instance

"Turned a deadly enemy into a valued friend"



*United States of America:*  
BURROUGHS WELLCOME & CO.  
35, 37 & 39, West Thirty-third Street (near Fifth Avenue)  
NEW YORK CITY

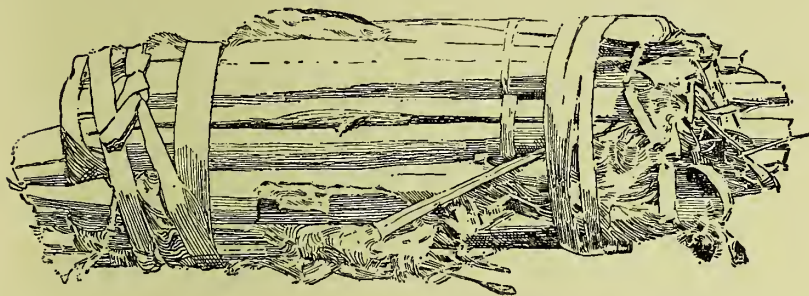
Sir THOMAS FRASER, of the Edinburgh University, first investigated and demonstrated, in 1885, the properties of Kombé from a comparatively small specimen, and B. W. & Co. immediately took vigorous steps to procure supplies of the drug regardless of expense and immense difficulties.

Pioneers in the  
introduction of  
Strophanthus

Emissaries were sent to collect the small reserves of arrow poison from the rude huts of many Central African warriors. In this way a fair quantity was accumulated, but at a cost of more than £20 per pound.

£20 per pound

Thus, the true *Strophanthus Kombé* was first introduced to England and to the world—B. W. & Co. were first in the field.



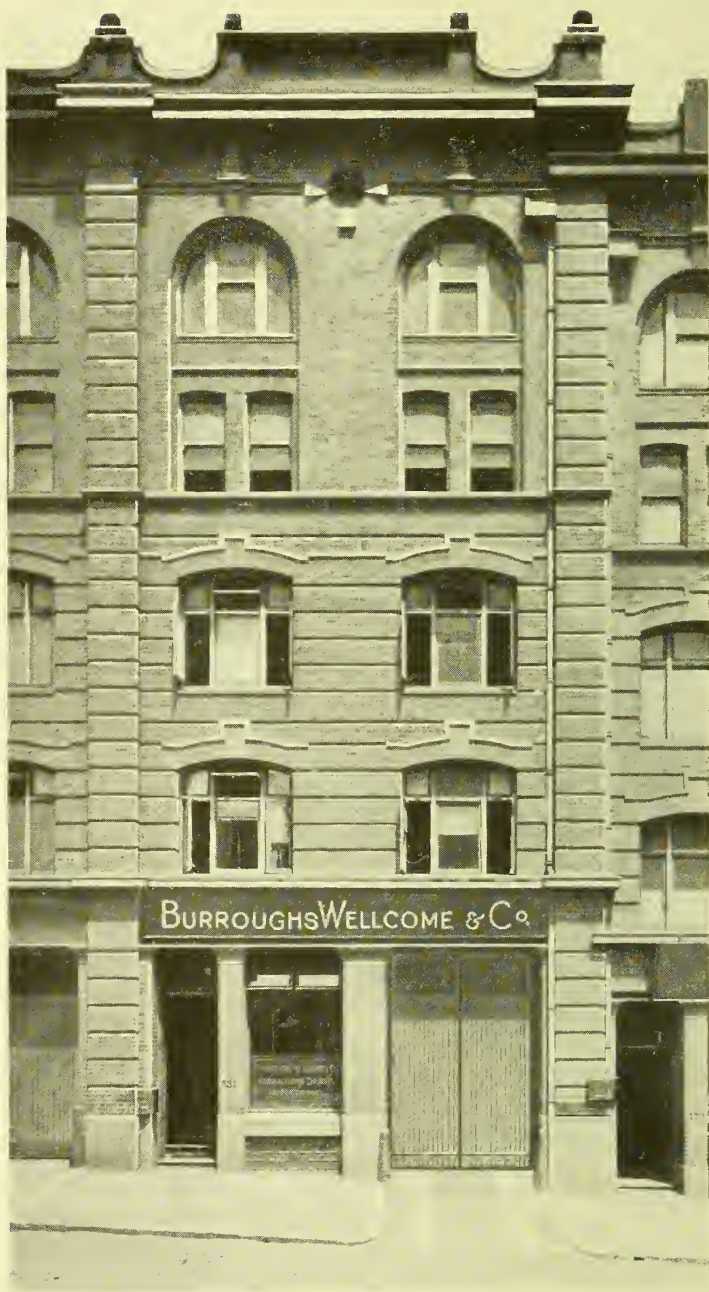
A bundle of the first consignment of *Strophanthus* which reached Europe  
for Burroughs Wellcome & Co.

These earliest supplies were obtained quite regardless of monetary considerations, and, notwithstanding the great cost, parcels of the drug and its preparations were at once distributed, without charge, to leading physicians throughout the world. By this means the therapeutic properties of *strophanthus* were confirmed by investigators in various lands.

For more than a year this was the only supply of *Strophanthus* outside the "Dark Continent," and then B. W. & Co. again secured all that was obtainable, and were the only suppliers for many months. *Strophanthus* is now one of the approved remedies of the *Pharmacopœias*. In less than two years the firm was treating several hundred-weights of *strophanthus* seeds at a time, thus securing perfect uniformity in the activity

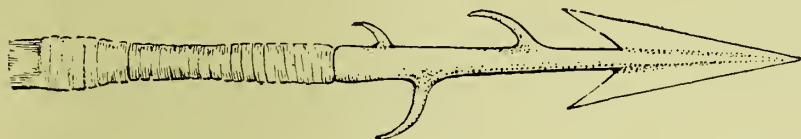
Products of  
B. W. & Co.  
secure pre-  
cision of dose





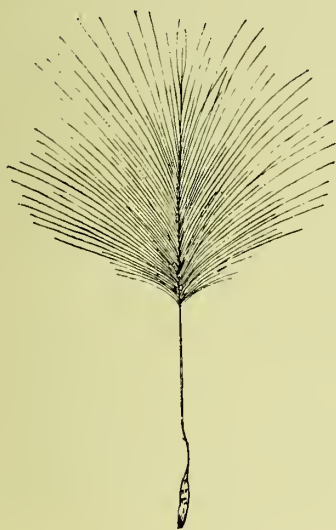
*Australia:*  
BURROUGHS WELLCOME & CO.  
481, Kent Street, SYDNEY, N. S. W.

of the products, and enabling the dosage and action to be controlled with precision.



Arrow-head poisoned with *Strophanthus*

Amongst those who were interested in the introduction of *Strophanthus* were Sir JOHN KIRK (then of Zanzibar), and Dr. DAVID LIVINGSTONE, who referred to its employment by natives as an arrow poison, in the narrative of his expedition to the Zambesi. It was the intimate association which BURROUGHS WELLCOME & Co. have always had with the pioneers of African exploration which enabled them to be first in placing supplies of the drug at the disposal of the medical profession.



Plumed seed of *Strophanthus Kombé*

STROPHANTHUS KOMBÉ, the source of the drug, is a woody climber growing freely in many parts of Eastern Africa. From the seeds the natives prepare a paste with which they poison their arrows.

The source





*South Africa:*  
BURROUGHS WELLCOME & CO.,  
5, Loop Street, CAPE TOWN

The seeds are contained in follicles, and each bears a beautiful plume-like appendage springing from a delicate stalk. Each seed weighs about half a grain.

#### PIONEERS IN PHARMACOLOGICAL WORK ON ANIMAL SUBSTANCES

When renewed attention was drawn to the therapeutic action of certain animal substances, this firm pioneered the pharmacological work on the various glands. Having already been long engaged upon researches on brain matter and other substances of animal origin, they were first to produce a stable and reliable product of the thyroid gland, and this remains the standard and accepted preparation amongst the medical profession throughout the world.

Although the principle suggesting and guiding this modern departure in therapeutics is the outcome of recent physiological research, the belief in the use of organs or tissues for the relief of human suffering, or for the production of certain physical conditions, is known to have existed from the earliest times.

Antient belief

The belief in the utility and value of animal glands and tissues in the cure of disease is not altogether the outcome of modern research, for we learn from Herodotus, fifth century B.C., that in his day, the people called Budini or Geloni "used the testicles of otters, beavers and other square-faced animals for diseases of the womb." From prehistoric times savage peoples have eaten the hearts of lions, tigers and other courageous animals, and even of human enemies, with the object of acquiring added valour in battle.

Among old-world medicines, compounds of the organs and tissues and excreta of mammals, birds, fishes and insects occupied permanent positions of prominence. They were included in the London Pharmacopœia issued by the Royal College of Physicians in 1676, and in Salomon's New London Dispensatory of 1684. The present increasing use of animal substances may be largely traced to the researches and enthusiastic advocacy of Brown-Séquard, though it must be admitted that such

The use of  
animal  
substances



*Italy:*  
BURROUGHS WELLCOME & CO.  
26, Via Legnano, MILAN



advocacy was exaggerated, and perhaps lacked dignity and reserve. In spite of his attitude, which experience has not justified, he, in some considerable measure, succeeded in establishing his contention that all glands, with or without excretory ducts, give to the blood, by internal secretion, principles always important and in most cases essential, to the general well-being of the body.

Organo-therapy, animal medication, and glandular therapeutics are among the terms now applied to the administration of organs or tissues or of the internal secretions of glands, in certain diseases, induced, or believed to be induced, by the degeneration, disease, defective development, or removal of the corresponding organs, tissues, or glands. Many diseases, arising from defective functions of particular organs, are now treated with these animal substances, and the principle has been established that the lessened or lost power of an organ may, in some cases, be restored by the administration of corresponding organs taken from healthy lower animals.

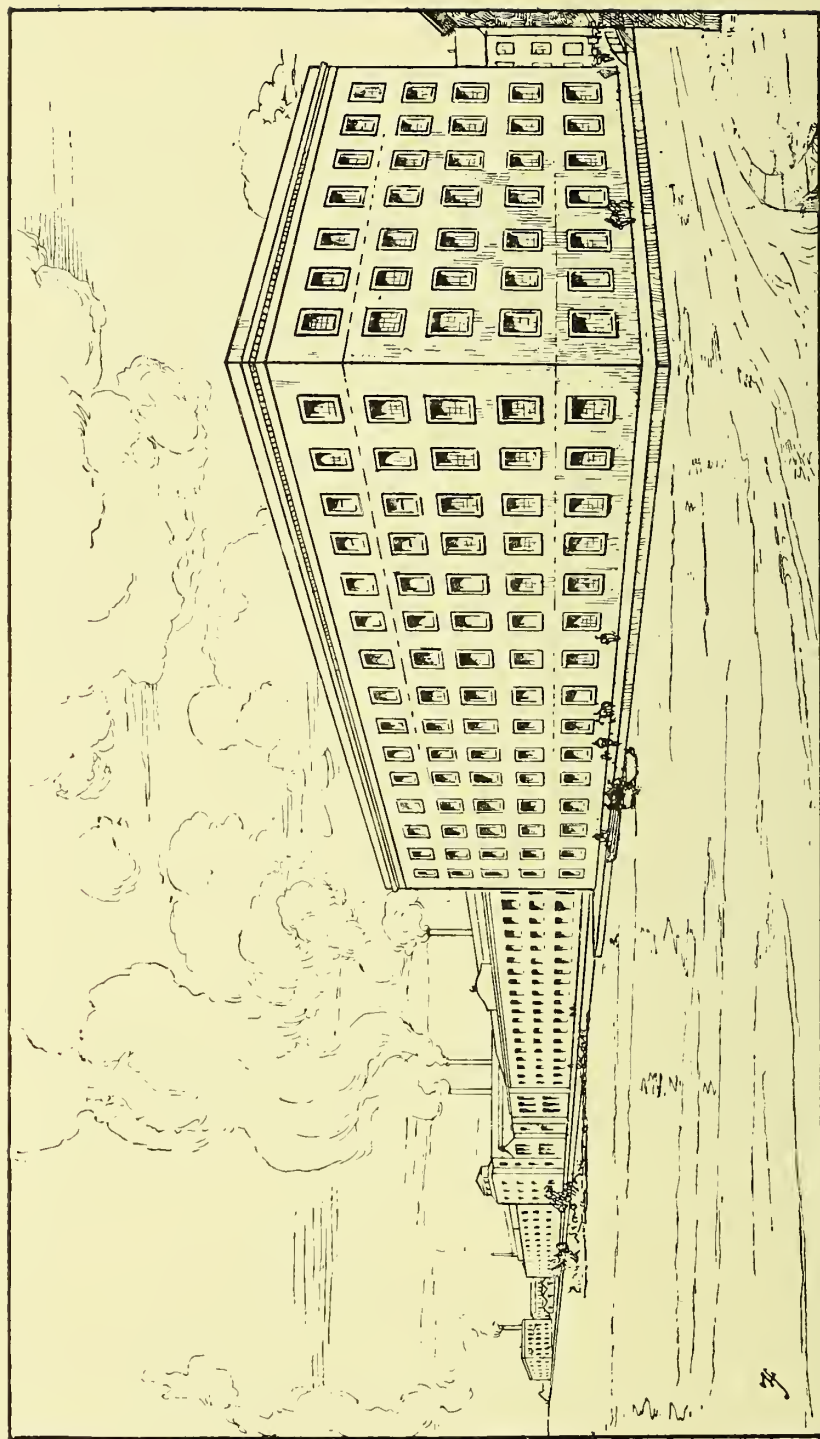
Modern  
knowledge

The work of Burroughs Wellcome & Co. on these animal substances has been directed not only to the therapeutic but to the chemical and pharmacological side, and the production of active and staple products for the use of the medical profession, and in this they have attained marked success.

Amongst other animal products dealt with was the supra-renal gland, which yielded first to Abel and Crawford a powerful and highly valuable active principle which they named Epinephrine. Other workers produced modified products, but the active principle was first produced in a dry, soluble, active form in the Wellcome Physiological Research Laboratories, and is now issued by the firm under the title 'Hemisine.'

#### A NEW BLOOD-PRESSURE RAISING PRINCIPLE

More recent researches have led to the discovery at the B. W. & Co. Works Laboratories of a synthetic substance, 'Epinine,' possessing the valuable properties of the natural active principle of the supra-renal gland, and, in



'WELLCOME' CHEMICAL WORKS AND LABORATORIES, DARTFORD, NEAR LONDON

addition, showing certain marked advantages in use. Being a synthetic base which combines to form crystalline salts, 'Epinine' can be readily purified, and the rise of blood-pressure produced by it is equal in degree and more prolonged than that due to the supra-renal active principle.

#### GOOD OR EVIL

Ergot, "the blessed and cursed blight of rye," which has wrought much good and much evil, is now greatly valued as a remedy, yet it destroyed countless lives during the grain plagues, called St. Anthony's fire, in the middle ages.

Ergot of rye for many years presented a problem which baffled scientific workers. It has been investigated in these same laboratories, and its representative therapeutic principles are now issued in the form of a standardised product, 'Ernutin,' of great power and uniform activity, of immense importance to the medical profession.

Ergot blessed  
and cursed

#### THERAPEUTIC SERA

The Wellcome Physiological Research Laboratories were pioneers in the production of Anti-diphtheritic Serum in the British Empire, and also supplied the first used in the United States of America. During the early days, and until the real value was conclusively demonstrated, all offers to purchase supplies of the serum were refused, but all that could be produced was freely placed without charge at the disposal of the principal clinics, hospitals and private medical men who had diphtheritic cases under treatment. These trials proved successful, and the 'Wellcome' brand of serum, supplied by Burroughs Wellcome & Co., has continued to hold first place throughout the world. These laboratories have done a vast amount of original work in the whole range of therapeutic sera—and in vaccines, etc., and in many other organic bodies of importance in medicine.

At first for  
clinical tests

Though these Physiological Research Laboratories are conducted under separate and distinct direction, and many of the researches are solely of scientific interest as contributions to human knowledge, yet much work of practical value is carried out for the firm, the Principal of which founded the laboratories.



## WELLCOME CLUB AND INSTITUTE



BIRD'S-EYE VIEW OF  
WELLCOME CLUB AND  
INSTITUTE BUILDINGS  
AND GROUNDS

REFERENCES :—1 Staff Club House. 2 Library Building and Club House for Lady Employees. 3 Club House for Gentlemen Employees. 4 Gymnasium and Assembly Room. 5 Bath and Lavatories. 6 Greek Temple. 7 Lawn. 8 Sports Field. 9 Lake. 10 Orchard.

## FINE CHEMICALS

The Wellcome Chemical Research Laboratories have worked in the same manner, with benefit to science and to the firm, devising new chemical processes and producing new chemical agents, both organic and inorganic. The investigation of vegetable drugs and their representative principles have yielded highly important results, both in the discovery of new principles and in raising the standard of purity and potency of valuable well-known substances, notably Pilocarpine, Aconitine, etc., etc. The co-operation of these two research laboratories, with their efficient scientific staffs working under the guidance of the two highly-qualified Directors, distinguished for thoroughness and accuracy, is of immense importance to the firm.

Raising the  
standard

But the research work does not rest here. There is also in the experimental and analytical laboratories at the firm's works, a highly-skilled staff constantly engaged in research for the discovery of new active chemical and pharmaceutical substances, and for the improvement of those already known.

Amongst the notable discoveries are 'SOAMIN,' the new substance which has proved so successful in the treatment of Syphilis, and of the dread Sleeping Sickness so prevalent among the population of the Congo, Uganda and other parts of Central Africa; also 'NIZIN,' the new antiseptic, powerful, but free from many of the dangers of other antiseptics.

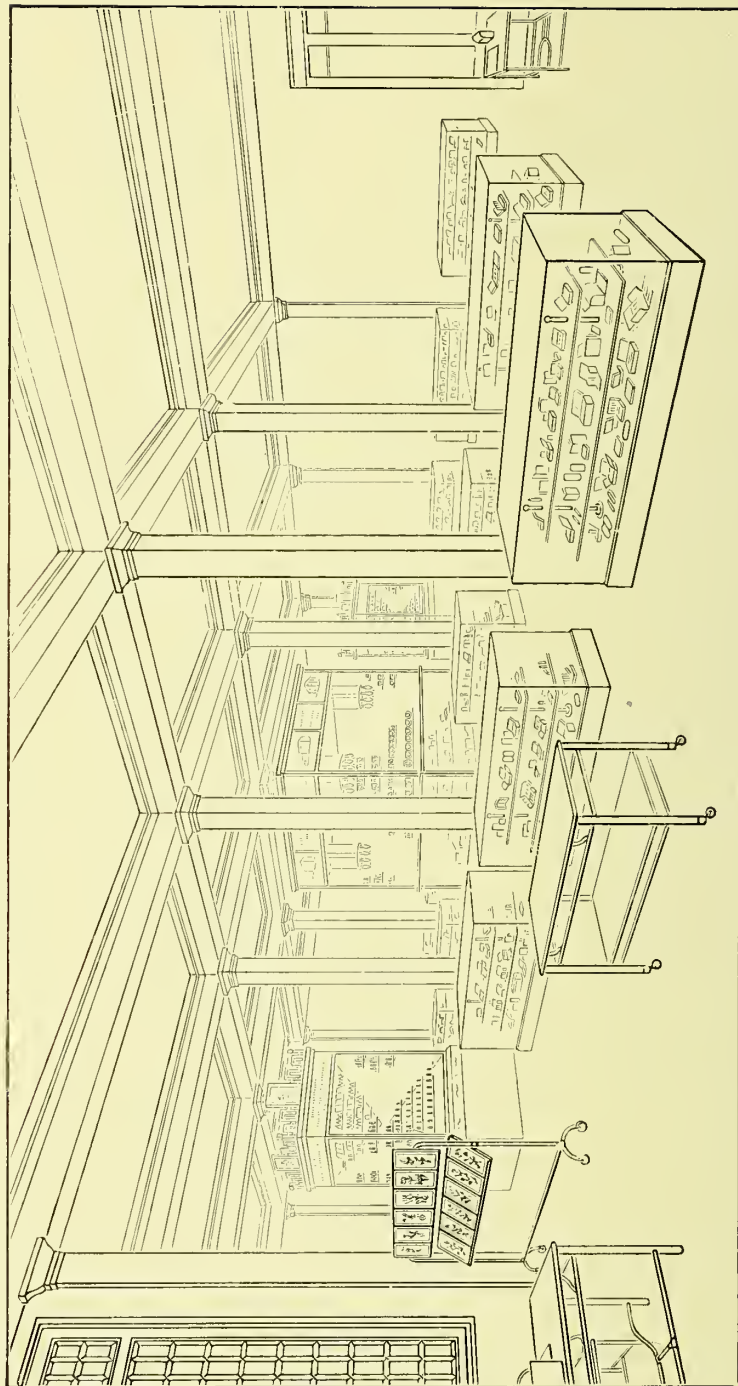
A large number of other important developments in chemistry and pharmacy have been made in the Works Laboratories, including the production of Chloroform of a standard that secures greatly increased uniformity and safety, and the confidence of the medical profession.

A reliable  
chloroform

In the manufacturing departments every operation is studied with the view to new discoveries and improvements, and aiming to make daily progress.

## EQUIPMENTS

Completely fitted cases have been devised to meet the requirements of up-to-date medical men and others engaged in medical and sanitary science; for example,



PART OF INTERIOR OF B. W. & CO. EXHIBITION ROOM, 54, WIGMORE STREET, LONDON, W.



hypodermic, ophthalmic cases, urine testing, water analysis, bacteriological testing cases, etc.

Medicine and first-aid chests, cases, belts, etc., for military and naval purposes, for explorers, missionaries, travelling journalists, war correspondents, aeronauts, motorists, yachtsmen, planters; in fact, equipments for the air, for the earth, for the depths, and for every clime under every condition.

#### HISTORY OF COMPRESSED DRUGS

Burroughs Wellcome & Co. are successors to, and the sole proprietors of, the business of BROCKEDON, who, in 1842, originated compressed medicines in the shape of bi-convex discs — issued under the designation of “compressed pills.” The production of compressed substances has been developed and carried to a high state of perfection by B. W. & Co. This has been accomplished by research and the use of chemicals of exceptional quality, and by the employment of specially-devised machinery of rare accuracy. This exclusive machinery, invented by the firm, and produced at great cost, operates with the precision of the finest watch-work. By its aid the firm’s specially-trained expert chemists are enabled to prepare compressed products for issue under the ‘Tabloid,’ ‘Soloid,’ and other brands, of unique accuracy of dosage and of a perfection of finish never before attained. These products present medicines, etc., of so varied a character as to represent a range of dosage of  $\frac{1}{1000}$  of a grain to 60 grains or more.

Origin of  
compressed  
products

The qualities of purity, accuracy, activity and stability which characterise ‘Tabloid’ and ‘Soloid’ products have secured unusual appreciation and approval from medical and pharmaceutical experts, and these preparations are prescribed in private practice and in military and civil hospitals in all parts of the world.

World-wide  
appreciation

#### MEDICAL AND FIRST-AID EQUIPMENTS

Burroughs Wellcome & Co. have, from the time of the founding of the business, made a special feature of studying medical and surgical requirements for expeditions to tropic and arctic and other trying climates, especially for the use of

explorers, journalists and other travellers; for armies in camp, on the march, and on the battlefield.

Careful and prolonged enquiry and practical experimentation have enabled them to so perfect their equipments for these purposes that almost every military expedition and journalistic pioneering tour of recent years has been fitted out by the firm.

#### B. W. & Co. GENERAL OFFICES

Chief offices

The firm's chief offices and administrative premises are centrally situated in the City of London, facing Holborn Viaduct Station, and at the junction of Holborn Viaduct and Snow Hill. They are thus within a stone's throw of such historic sights as St. Paul's Cathedral, the Old Bailey (Central Criminal Courts), the Charterhouse, St. Bartholomew's, and Smithfield, and within sight of the new General Post Office.

#### B. W. & Co. EXHIBITION ROOM

In the West End of London an elaborately fitted Exhibition Room has been recently opened in order that physicians may have an opportunity of inspecting historical and modern medical equipments and other products of the firm (*see page 42*). Here are displayed those preparations which have made the name of Burroughs Wellcome & Co. a byword for excellence.

#### 'WELLCOME' CHEMICAL WORKS

Works

The 'Wellcome' Chemical Works (*illustrated on page 38*), which form the principal manufacturing premises of the firm, are situated at Dartford, Kent, near London. On one side, the Works have direct water communication with London and the Docks of the Waterway of the Thames; on the other side they front on to the railway and so are in touch with the metropolis and the Continent.

#### SEVEN B. W. & Co. ESTABLISHMENTS ABROAD

Burroughs Wellcome & Co. have fully-equipped establishments at New York, Montreal, Sydney, Cape Town, Milan, Shanghai and Buenos Aires. Photographs of the New York, Sydney, Cape Town and Milan Houses appear on *pages 30, 32, 34 and 36*.

# TYPICAL AWARDS

AT INTERNATIONAL EXHIBITIONS

CONFERRED UPON BURROUGHS WELLCOME & CO.

FOR THE SCIENTIFIC EXCELLENCE

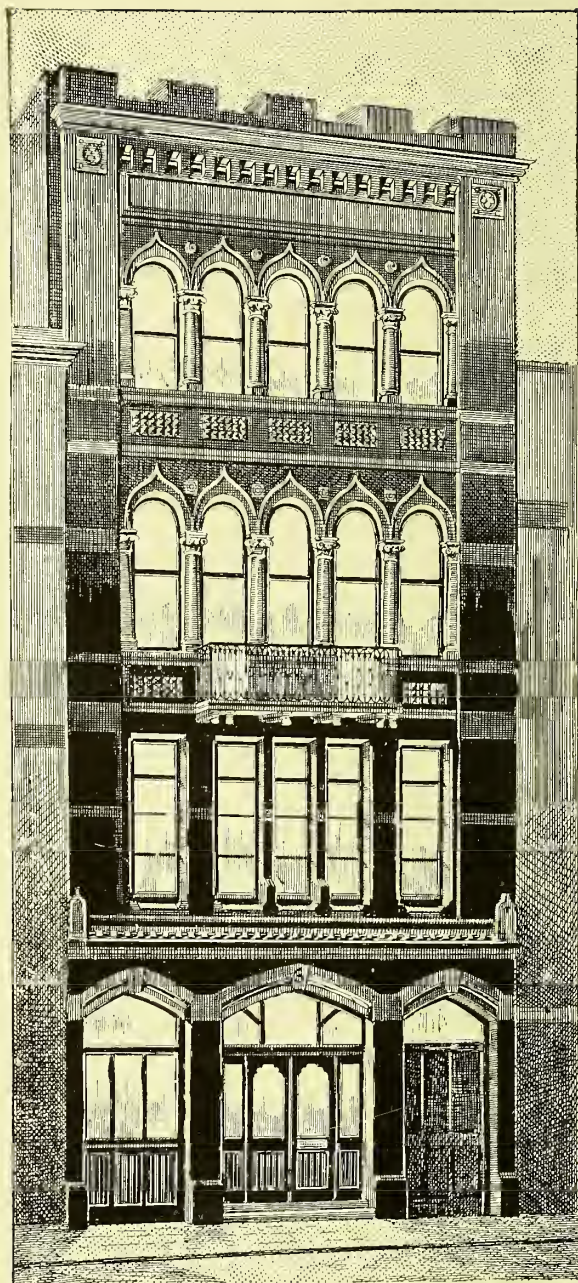
OF THE FIRM'S PRODUCTS

ST. LOUIS 1904	THREE GRAND PRIZES THREE GOLD MEDALS
LIÈGE 1905	SIX GRAND PRIZES THREE DIPLOMAS OF HONOUR THREE GOLD MEDALS
MILAN 1906	THREE GRAND PRIZES THREE DIPLOMAS OF HONOUR ONE GOLD MEDAL
LONDON (Franco-British) 1908	SEVEN GRAND PRIZES ONE DIPLOMA OF HONOUR TWO GOLD MEDALS
LONDON (Japan-British) 1910	FIVE GRAND PRIZES ONE GOLD MEDAL
BRUSSELS 1910	EIGHT GRAND PRIZES THREE DIPLOMAS OF HONOUR ONE GOLD MEDAL
ALLAHABAD 1910-11	ONE GOLD MEDAL
LONDON (Festival of Empire) 1911	TWO GRAND PRIZES ONE GOLD MEDAL
TURIN 1911	EIGHT GRAND PRIZES TWO DIPLOMAS OF HONOUR THREE GOLD MEDALS

MAKING IN ALL

MORE THAN **260** HIGHEST AWARDS





WELLCOME CHEMICAL RESEARCH LABORATORIES  
KING STREET, LONDON

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

## THE WELLCOME CHEMICAL RESEARCH LABORATORIES

THE first home of the laboratories was in a building located at No. 42, Snow Hill, but it was soon found desirable to make considerable extensions. In order to accomplish this, it was decided that the laboratories should be transferred to a building of their own, of which they should have complete use and possession. Such premises were secured at No. 6, King Street, Snow Hill, where, in a very central part of London, and amid surroundings replete with many of its most interesting historical associations, the laboratories are now located.

The building is a handsome, modern one of Venetian style of architecture, and comprises four stories and a basement. A view of it is represented on *page 46*.

On the ground floor of the building are the office of the Director, and the library, the latter being quite complete for the special requirements. It contains not only a considerable number of recent chemical and pharmacological works, but also complete sets of many journals, such as the *Journal of the Chemical Society*, *Berichte der deutschen chemischen Gesellschaft*, *Journal of the Society of Chemical Industry*, etc. Files of many of the more important chemical, pharmaceutical and medical periodicals of England, America and Germany are also kept. As several very large and complete scientific and technical libraries are also at all times accessible to members of the staff, it is evident that the requirements in this direction are most abundantly supplied. In the library there is also a cabinet containing specimens of the various substances obtained in the course of laboratory investigations, which already form a collection of considerable interest.

The library

The laboratories proper are located on the first, second and third floors of the building. They are similar in their arrangement, are provided with gas and electricity for both illuminating and heating purposes, and completely equipped with all the necessary apparatus and appliances for

The laboratories

Equipment of  
laboratories

conducting chemical investigations. There are pumps on each table for filtration under pressure, and special adaptations for vacuum distillations. A separate connection with the electric mains supplies the current for heating water-baths used for the distillation of ether and other similar liquids. Each laboratory is provided with fine analytical and ordinary balances, which are carefully protected from dust and moisture by tightly-fitting glass cases. There are also telephones on each floor, so that communication between the different laboratories or with the Director's office can be quickly effected.

The basement of the building, which is well lighted by electricity, contains a combustion furnace and all the appliances for conducting ultimate analyses, whilst two other furnaces of the most approved construction are available in the laboratories; it also contains a large electric motor for working the shaking and stirring apparatus, the drug mill, etc., and a dark-room adapted for polarimetric or photographic work. In direct communication with the basement are dry and commodious vaults, which afford ample room for the storage of the heavier chemicals and the reserve stock of glass-ware, etc. By means of a small lift, articles may be conveniently transported from the basement to any floor of the building.

Results of  
research published

It is, perhaps, hardly necessary to explain that some of the problems which engage the time and attention of members of the staff—which comprises a number of highly-skilled and experienced chemists—are of technical application, having reference to the perfection of the chemical products of Burroughs Wellcome & Co. These, naturally, do not always afford material for publication, and many other difficult researches extend over considerable periods of time. Nevertheless, more than one hundred publications, embodying the results of original work contributed to various scientific societies, which are now consecutively numbered, have already been issued. Other investigations in progress will, from time to time, form the subjects of future communications.



# AWARDS

CONFERRED UPON THE

## WELLCOME CHEMICAL RESEARCH LABORATORIES

AT INTERNATIONAL EXHIBITIONS

ST. LOUIS	ONE GRAND PRIZE
1904	THREE GOLD MEDALS

LIÉGE	ONE GRAND PRIZE
1905	ONE DIPLOMA OF HONOUR
	TWO GOLD MEDALS

MILAN	ONE GRAND PRIZE
1906	

LONDON	TWO GRAND PRIZES
(Franco-British)	
1908	

LONDON	ONE GRAND PRIZE
(Japan-British)	
1910	

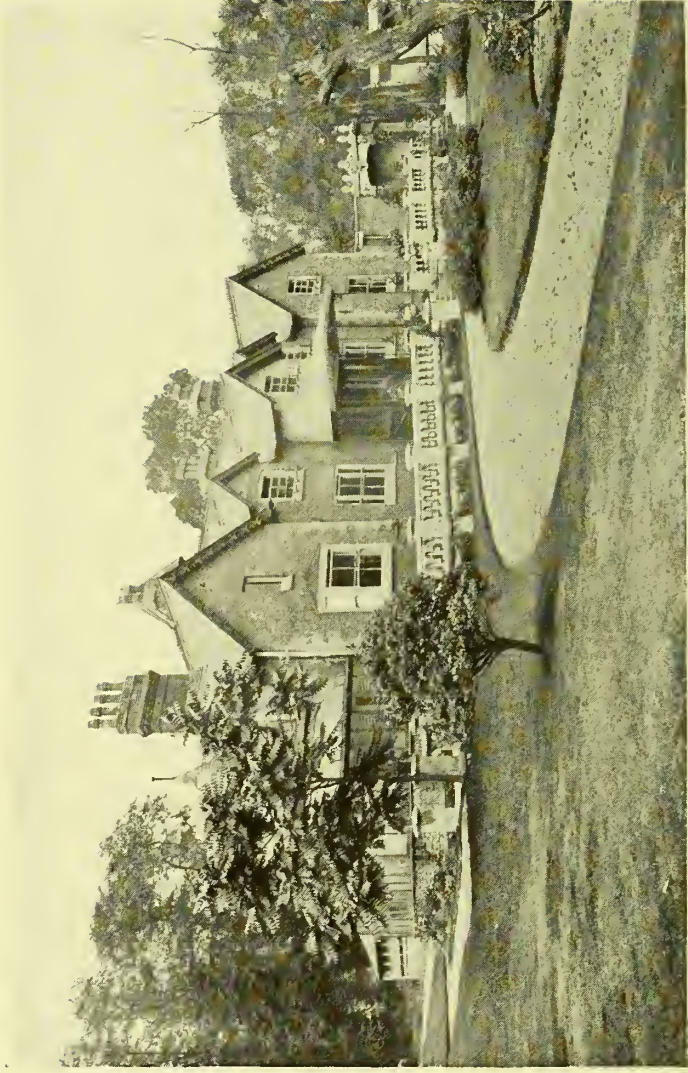
BRUSSELS	THREE GRAND PRIZES
1910	ONE DIPLOMA OF HONOUR

TURIN	THREE GRAND PRIZES
1911	ONE DIPLOMA OF HONOUR

FOR

CHEMICAL AND PHARMACOGNOSTICAL RESEARCH

ETC., ETC.



WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES, HERNE HILL, LONDON

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

## THE WELLCOME

### PHYSIOLOGICAL RESEARCH LABORATORIES

AMONG the results of the world-wide scientific activity characterising the past half-century, none is more striking and significant than the development of Therapeutics from a largely empirical code into an experimental science. The change has been brought about by the immense advances in the contributory sciences of Pathology, Bacteriology, Physiology and Pharmacology, which, indeed, may all be said to date their history as experimental sciences from within the same period.

Development  
of  
Therapeutics

A recognition of this development, and a desire to promote original research in these fields, led to the foundation, by Mr. Henry S. Wellcome, of the Wellcome Physiological Research Laboratories, the activities of which cover a wide field of therapeutic investigation. The production of anti-sera and of bacterial preparation for specific inoculation, and the researches in bacteriology and the mechanism of immunity arising from the development of this new department of therapeutics, have been an important part of the work of the laboratories from the time of their foundation. Of rather more recent development is the pharmacological department, which has carried on investigations into the mode of action and the nature of the active principles of drugs, both new and old, of vegetable and animal origin, and the production by synthesis of substances identical with, or related to, the naturally occurring active principles, both in structure and in physiological action. In addition to the drugs which have thus been investigated from all points of view in the Wellcome Physiological Research Laboratories, many others have

Foundation  
of  
laboratories  
in 1894

Work of  
laboratories



there been physiologically examined which owe their production or chemical investigation to the Wellcome Chemical Research Laboratories or the Experimental Department of the 'Wellcome' Chemical Works. Incidental to this pharmacological work has been research on the purely physiological problems which it suggests and involves. Methods have also been originated and developed for controlling and standardising by physiological experiment the activity of those potent drugs to which chemical methods of assay are not applicable.

While devoted primarily to original research, the results of which appear from time to time through the ordinary channels of scientific publication, the laboratories have also performed much work of a nature more directly applicable to the needs of Mr. Wellcome's firm.

No insistence is needed on the desirability of a uniform standard of activity in all drugs, and especially in such as contain principles of a highly active and toxic nature. In the case of some, such as cinchona or belladonna, such a standardisation is easily carried out by chemical means. There are, however, other drugs in which the active principles are of such a nature that attempts at chemical estimation are only misleading, even though the active principles are recognised and something known of their chemical nature. Typical instances of such drugs are the cardiac tonics (digitalis, strophanthus and squills), ergot, cannabis indica, pituitary and supra-renal preparations. Preparations of these drugs and substances are now standardised by physiological methods based on the original investigations and accumulated experiences of workers in the laboratories.

# AWARDS

CONFERRED UPON THE

WELLCOME PHYSIOLOGICAL RESEARCH  
LABORATORIES

AT INTERNATIONAL EXHIBITIONS

ST LOUIS	ONE GRAND PRIZE
1904	ONE GOLD MEDAL

LIÈGE	ONE GRAND PRIZE
1905	TWO GOLD MEDALS

MILAN	ONE GRAND PRIZE
1906	

LONDON	TWO GRAND PRIZES
(Franco-British)	
1908	

LONDON	ONE GRAND PRIZE
(Japan-British)	
1910	

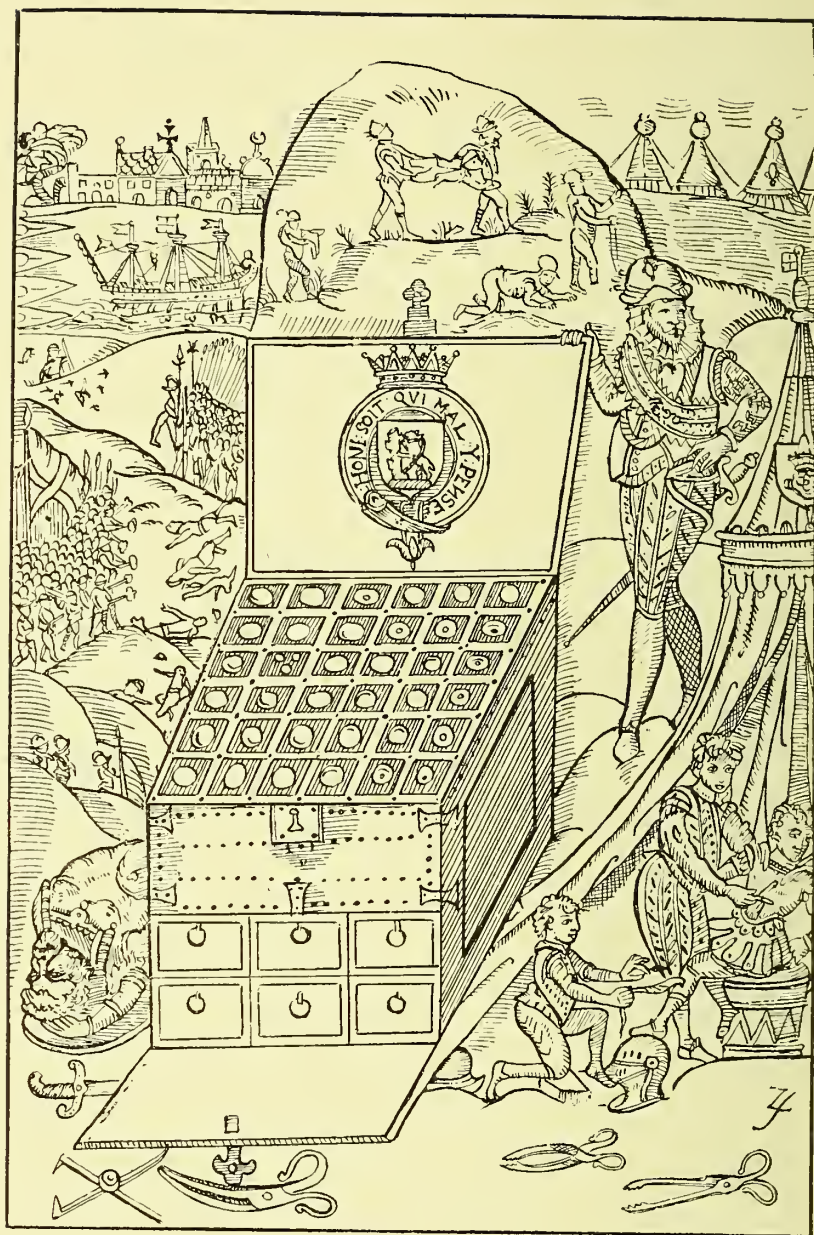
BRUSSELS	FOUR GRAND PRIZES
1910	

TURIN	THREE GRAND PRIZES
1911	

FOR

PHYSIOLOGICAL RESEARCH AND PREPARATIONS

ETC., ETC.



MILITARY MEDICINE CHEST—1588

Fabricius, a noted Swiss physician of the XVI century, recommended that the military chest should be furnished with no less than 362 varieties of medicine, some of which contained as many as 64 ingredients. The complexity of arrangement, the huge bulk and great weight, the liability to breakage, and the complicated inconvenience of medicine chests persisted until the introduction of 'Tabloid' Medical Equipments.



## HISTORICAL MEDICAL EQUIPMENTS

THE Medical Equipments of the present day differ notably from those of olden times in two distinct directions—diminished bulk, and in purity and efficiency of content. This improvement has only been effected in the last quarter century; before that time, campaigning medicine chests had to be either of enormous and unwieldy size, or, if small, they could contain only the most meagre supplies.

In the Middle Ages, owing to the great variety and bulky nature of the remedial agents used, the medicine chests employed in military campaigns assumed enormous proportions, and it was not until the middle of the nineteenth century that progress was made towards reducing the bulk of campaigning medical outfits.

Bulky yet  
inadequate  
equipments



Size of one product of 'Tabloid'  
Cinchona Tincture, min. 30



Length of 30 min, tube of same diameter  
as 'Tabloid' product

## EARLY AFRICAN EXPLORING EXPEDITIONS

Early explorers, particularly in Africa, found the difficulties of procuring suitable portable medical supplies practically insuperable, and the horrors of disease and death associated with their expeditions were almost beyond description.

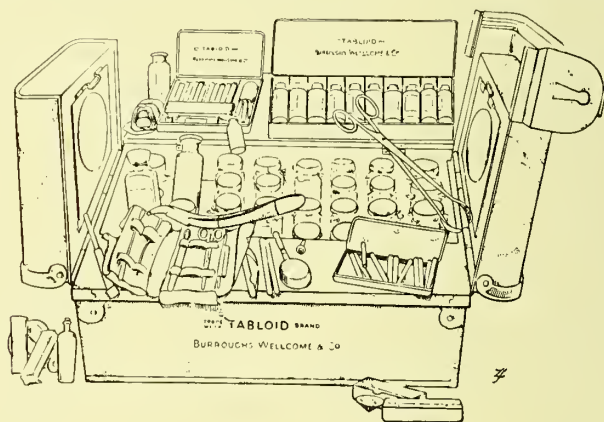
"When I think [said the late Sir H. M. STANLEY, in the course of one of his lectures] of the dreadful mortality of Capt. TUCKEY'S Expedition in 1816, of the NIGER Expedition in 1841, of the sufferings of BURTON and SPEKE, and of my own first two expeditions, I am amazed to find that much of the mortality and sickness was due to the crude way in which medicines were supplied to travellers. The very recollection causes me to shudder."

Early  
expeditions  
Mortality  
due to crude  
medicines

That a very marked change has taken place can be gathered from a more recent speech of this eminent explorer and journalist, in which he said :—

“ In my early expeditions into Africa, there was one secret wish which endured with me always, and that was to ameliorate the miseries of African explorers. How it was to be done I knew not; who was to do it, I did not know. But I made the acquaintance of Messrs. BURROUGHS WELLCOME & Co. As soon as I came in sight of their preparations and their works, I found the consummation of my secret wish. On my later expeditions I had all the medicines that were required for my black men, as well as my white men, beautifully prepared, and in most elegant fashion arranged in the smallest medicine chest it was ever my lot to carry into Africa.”

B. W. & Co.  
solved the  
problem



One of the 'TABLOID' BRAND MEDICINE CHESTS carried by the late Sir H. M. STANLEY through "Darkest Africa," and brought back, after three years' journey, with the remaining contents unimpaired.

In his books, *Founding the Congo Free State* and *In Darkest Africa*, the late Sir H. M. STANLEY wrote in the very highest terms of 'Tabloid' Medical Equipments.

Amongst other cases used during STANLEY'S travels is the famous "Rear-Guard" 'Tabloid' Medicine Chest, which remained in the swampy forest regions of the Aruwimi for nearly four years, and more than once was actually submerged in the river. When it was brought back to London, the remaining contents were tested by the official analyst of the *Lancet* (London, Eng.), who reported that the 'Tabloid' medicaments had perfectly preserved their efficiency.

Contents of  
Stanley's  
"Rear Guard"  
Chest  
tested by  
the "Lancet"

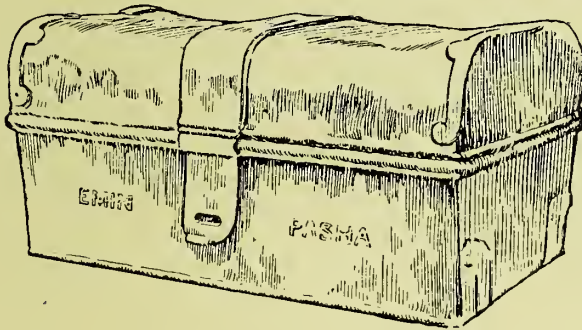
The late Surgeon-Major PARKE, Stanley's Medical Officer, in his *Guide to Health in Africa*, writes :—

"The medicinal preparations which I have throughout recommended are those of BURROUGHS WELLCOME & Co., as I have found, after a varied experience of the different forms in which drugs are prepared for foreign use, that there are none which can compare with them ['Tabloid' products] for convenience of portability in transit, and for unfailing reliability in strength of doses after prolonged exposure."

Unfailing  
reliability  
portability and  
convenience

At this point it is of interest to turn to the 'Tabloid' Medicine Chest, here illustrated, which was discovered near Kenia, in the Aruwhimi Dwarf Country. It was the last chest supplied to EMIN PASHA, GORDON's Governor of the Equatorial Sudan. This chest was taken by Arabs when EMIN PASHA was massacred in 1892, and

Emin Pasha



EMIN PASHA'S 'TABLOID' BRAND MEDICINE CHEST

was recaptured by BARON DHANIS, Commandant of the Congo Free State troops, after the battle of Kasongo. It was subsequently stolen by natives, and finally recovered by an officer of the Congo Free State, and returned to BURROUGHS WELLCOME & Co.

The following is a copy of EMIN PASHA's letter written to BURROUGHS WELLCOME & Co. on receiving the chest :—

"Gentlemen,—I found the medicine chest you forwarded me fully stocked. I need not tell you that its very completeness made bound my heart. Articles like those could not be made but at the hand of the greatest artists in their own department. If any one relieved from intense pain pours out his blessings, they will come home to you."



"I should like to expatiate somewhat longer on the intrinsic value, but sickness preventing me to do so. I wish you to believe me,"

*Yours very faithfully*

*Dr. Emin Pasha*

A history of all the 'Tabloid' equipments associated with African exploration would, of itself, make a large volume, and it is only possible to make brief mention of a few other instances of their use.

#### 'TABLOID' MEDICAL EQUIPMENTS IN MILITARY CAMPAIGNS

That 'TABLOID' EQUIPMENTS excel for military purposes has been abundantly demonstrated during various British and foreign military campaigns. The following is an extract from the **Official Government Report** made by the Chief Medical Officer of the last **BRITISH MILITARY EXPEDITION to ASHANTI**, on the 'Tabloid' Brand Medical Equipment supplied by **BURROUGHS WELLCOME & Co.**:—

"The supply of medicines, both as to quality and quantity, left nothing to be desired. There was no scarcity of anything. The 'Tabloid' medicines were found to be most convenient and of excellent quality. To be able to take out at once the required dose of any medicine, without having to weigh or measure it, is a convenience that cannot be expressed in words. Time is saved to an extent that can hardly be realised, and so is space, for a fitted dispensary, or even a dispensary table, is unnecessary. The quality of medicines was so good that no other should be taken into the field. The cases supplied are almost ideal ones for the Government. They are light, yet strong, and the arrangement of the materials and medicines is as nearly perfect as possible."

It is instructive to compare the experience of this Expedition with that of the **WOLSELEY ASHANTI EXPEDITION** of 1873, fitted out according to old-time methods. The suffering and loss of life were then terrible, for want of suitable medical equipments.

Without exception, 'Tabloid' Medical Equipments have been used in all the campaigns of the last twenty-five years, and have played an important part in combating the diseases which seem inseparable from an army in the field.

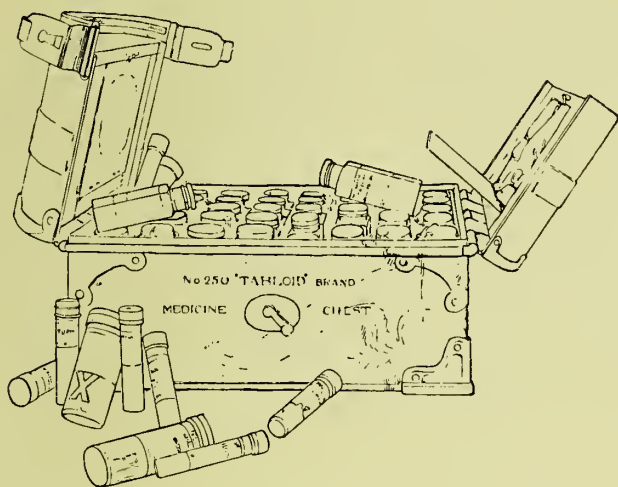
Military  
expeditions

No delay to  
weigh or  
measure

Quality so good  
no other should  
be taken into  
the field

During and immediately after the Turco-Grecian War of 1897, many accounts appeared of the 'Tabloid' Equipments used by the British and foreign medical men who had volunteered their services in the cause of humanity. The following report was made by one of the medical officers in charge:—

The Turco-Grecian War, 1897



One of the 'TABLOID' BRAND MEDICINE CHESTS used in the Greek Hospitals during the Turco-Grecian War

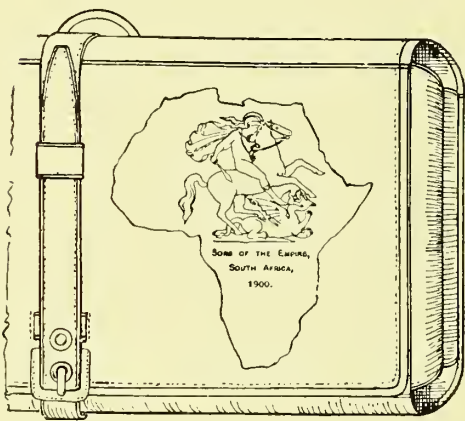
"I had with me during the campaign one of the cases containing 'Tabloid' Drugs and also one of the Emergency Dispensing Belts supplied by this same firm (Burroughs Wellcome & Co.). The Emergency Dispensing Belt was slung round my dragoman, George.

"When I landed at Volo to receive and attend the wounded soldiers as they came down from the battlefield of Velestrino, I found it of inestimable value. The 'Tabloid' Case was the only dispensary I had. All medicines were dispensed by means of the case to the soldiers on the hospital ship, as well as to those afterwards in the English hospital organised at the Piræus. I would mention that I found the 'Soloid' Corrosive Sublimate for making antiseptic solutions especially useful when dressing wounds. In fact, I consider no expedition would be complete without a supply of 'Tabloid' Medicines, whether it be in the 'Tabloid' Cases or Emergency Dispensing Belts."

'Tabloid' Case  
the only  
dispensary

During the American war with Spain, in Cuba and the Philippines, 'Tabloid' Medical Equipments were specially ordered for, and used by, the U.S. Army and Navy.

The Expedition which, under the command of LORD KITCHENER, defeated the Khalifa and reconquered the Sudan, was supplied with 'Tabloid' Medical Equipments.



One of the 'TABLOID' BRAND MEDICINE CASES specially designed for, and supplied to, the troops from the various British Colonies, for use in the South African Campaign

An illustration of one of the 'Tabloid' Medical Equipments specially designed for, and supplied to, the British Colonial Forces for use in the South African Campaign is here shown. Similar cases were designed for, and supplied to, the CITY OF LONDON IMPERIAL VOLUNTEERS and IMPERIAL YEOMANRY.

The equipment of the American Hospital Ship *Maine*, and the valuable services it rendered in connection with the campaigns in South Africa and in China, are so recent as to be within the memory of all. The whole of the medical outfit was supplied by BURROUGHS WELLCOME & Co.

Referring to this equipment, the *Lancet* (London, Eng.) reported :—

The whole of the medical outfit has been supplied by Messrs. Burroughs Wellcome & Co. One of the medicine chests supplied by this firm is in tooled leather, designed by Mr. Henry S. Wellcome.

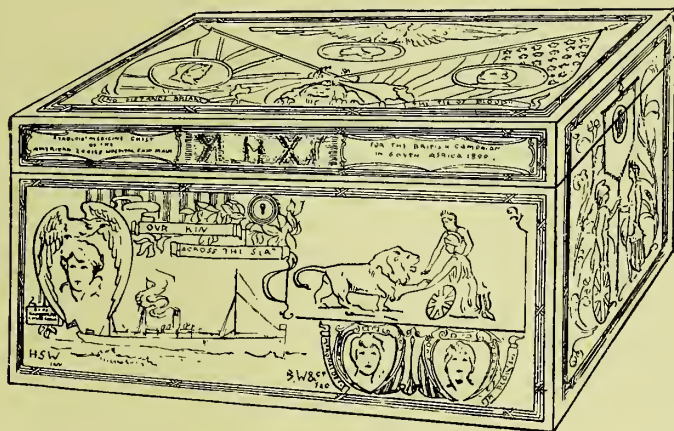
Hospital Ship  
"Maine"

Entire medical  
outfit supplied  
by B. W. & Co.



The following description of this chest may be of interest :—

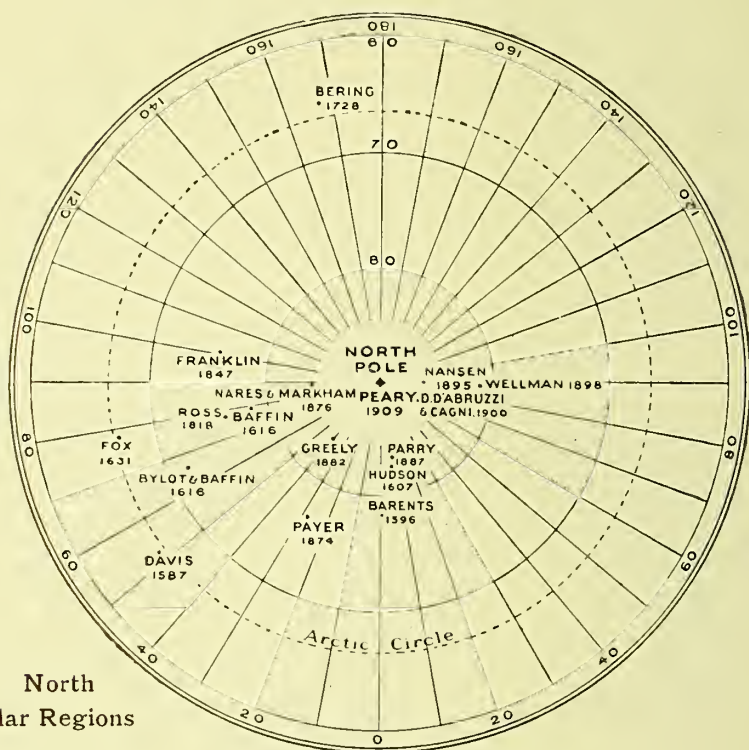
The chest is made of oak covered with Carthaginian cow-hide, tooled by hand, with chaste designs successfully representing in allegory the alliance of Great Britain and



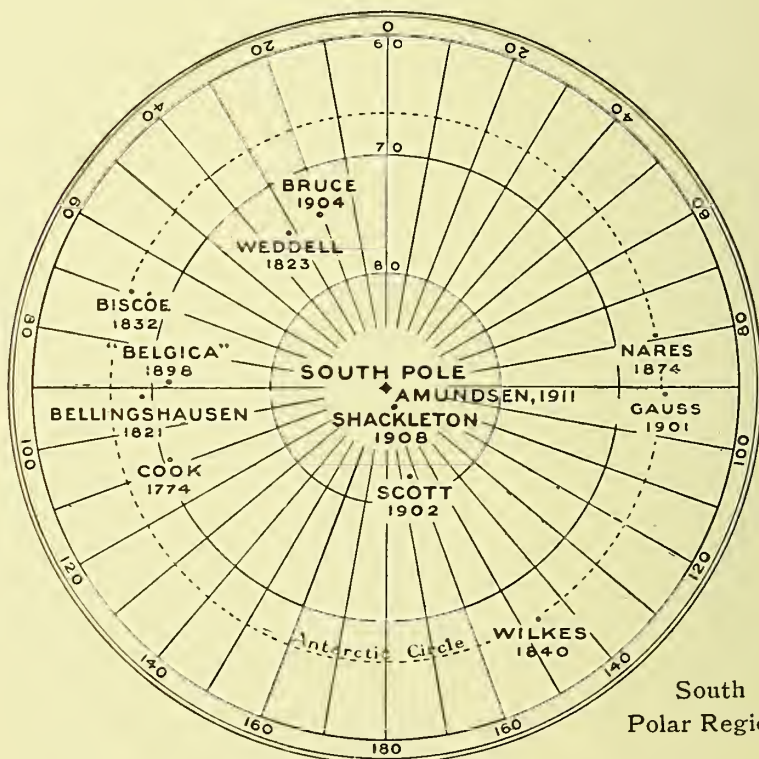
One of the 'TABLOID' BRAND MEDICINE CHESTS specially designed for, and supplied to, the Hospital Ship "Maine"

America in the succour of the wounded. On the top panel appear the Union Jack and the Stars and Stripes entwined, portraits of Queen Victoria, George Washington and President McKinley; also representations of the British Lion and American Eagle. The front panel bears portraits of Lady Randolph Churchill (Mrs. George Cornwallis-West), the hon. secretary and the hon. treasurer of the fund; a picture of the ship itself; a scene representing the British Lion, wounded by an arrow which lies at his side, being ministered to by Britannia and Columbia. A frieze is formed by a representation of an American Indian wampum, upon which Brother Jonathan and John Bull are depicted hand-in-hand. The panel at each end of the chest represents Britannia and Columbia supporting a banner bearing the Red Cross, and on the panel at the back the British Regular and Colonial Lancers are shown charging a

# LATITUDES REACHED BY PIONEERS IN ARCTIC AND ANTARCTIC EXPLORATION



North  
Polar Regions



South  
Polar Regions

Boer force. Keble's line, "No distance breaks the tie of blood," and Bayard's phrase, "Our kin across the sea," are inscribed on the chest. This beautiful cabinet contains a number of smaller cases fitted with 'Tabloid' and 'Soloid' products and 'Tabloid' Hypodermic Outfits, and is in itself a compact and complete dispensary.

#### IN ASIA

Sir Sven Hedin, whose recent remarkable achievement in the exploration of Central Asia, when he set foot in one of the sacred forbidden cities of Tibet, is well known, took with him on his journey across the Himalayas a 'Tabloid' Medicine Chest, and in his fascinating book, "Trans-Himalaya," he speaks in the highest terms of the utility and completeness of the equipment.

Sir Sven Hedin's  
medicine chest

To this enterprising explorer his 'Tabloid' Medicine Chest was of great use, not only in providing medical treatment for his followers and himself on their long and perilous march, but also in his diplomatic relations with the great Tashi-Lama.

We are indebted to the courtesy of his publishers, Messrs. Macmillan, for permission to quote the following interesting description by Sir Sven Hedin of the presentation of his 'Tabloid' Medicine Chest as an offering of friendship, in accordance with Oriental custom, to the venerated chief of the Buddhist religious community at Tashi-Lunpo :—

"'Bombo Chimbo' (the name by which Dr. Sven Hedin was known), we know that you are a friend of the Tashi-Lama, and we are at your service."

\*

\*

\*

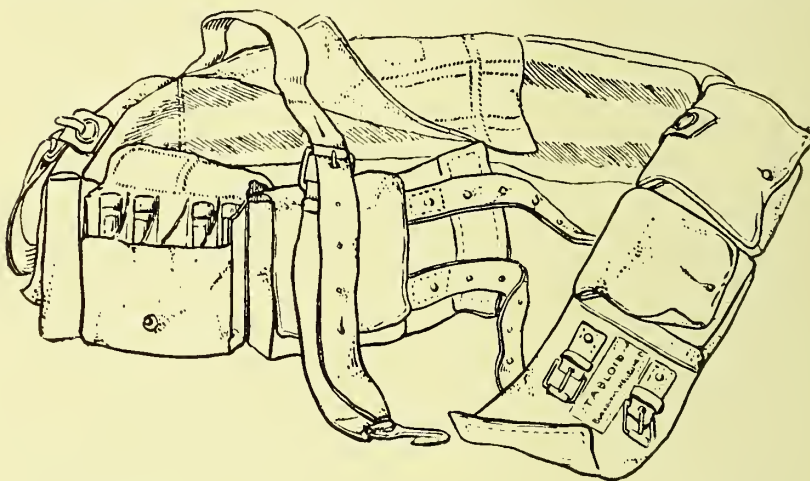
\*

"When we had conversed for two hours I made a move to leave him, but the Tashi-Lama pushed me back on to the chair and said, 'No, stay a little longer.' Now was the time to present my offering. The elegant English medicine chest was taken out of its silk cloth, opened and exhibited, and excited his great admiration and lively interest; everything must be explained to him. The hypodermic syringe in its tasteful case, with all its belongings, especially delighted him. Two monks of the medical faculty were sent for several days running to write down in Tibetan the contents of the various 'Tabloid' boxes and the use of the medicines."



## IN ARCTIC AND ANTARCTIC EXPLORATION

'Tabloid' Medical Equipments have been used with remarkable success in the Arctic and Antarctic Expeditions

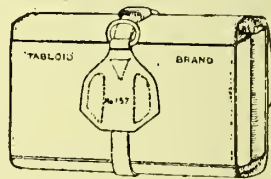


One of the 'TABLOID' BRAND MEDICINE BELTS carried by  
NANSEN on his Arctic Expedition

Famous users  
of 'Tabloid'  
products

associated with the names of NANSEN, PEARY, JACKSON-HARMSWORTH, the DUKE OF THE ABRUZZI, SCOTT and SHACKLETON. The belts and other 'Tabloid' Equipments supplied to NANSEN for his journey "Farthest North," and

One of the 'TABLOID' BRAND MEDICINE  
CASES carried by the DUKE OF THE  
ABRUZZI'S Polar Expedition



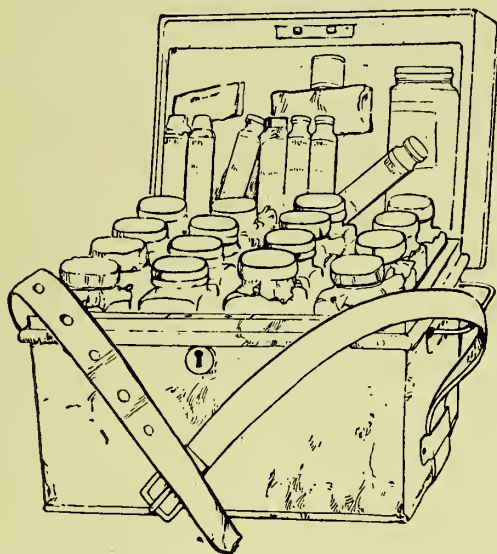
those used by the JACKSON-HARMSWORTH ARCTIC EXPEDITION, are now added to BURROUGHS WELLCOME & Co.'s collection of historic outfits.

The ITALIAN ARCTIC EXPEDITION, commanded by the DUKE OF THE ABRUZZI, found that, despite the fact that the northern latitude of  $86^{\circ} 33' 49''$  was reached, the 'Tabloid'

Medicine Chests and Cases with which the Expedition was equipped were brought back with their remaining contents quite unaffected by the rigour of the climate.

Unaffected  
by climate

One of the 'TABLOID  
BRAND MEDICINE  
CHESTS' used by  
REAR-ADMIRAL  
PEARY



REAR-ADMIRAL PEARY, to whose record stands the achievement of reaching the NORTH POLE, writing from Etah, Greenland, reports :—

"Burroughs Wellcome & Co. 'Tabloid' Medicine Cases and supplies have proven invaluable."

The entire medical outfit of the National Antarctic Expedition was furnished by Burroughs Wellcome & Co., and on the return of the *Discovery*, with the members of the Expedition on board, the medical officer made a highly satisfactory report on the 'Tabloid' Medical Equipment.

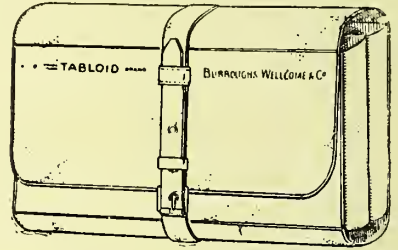
Medical officer's  
satisfaction

In August, 1901, the *Discovery* left England, and in the following January crossed the limit of the Antarctic Circle.

Having passed the farthest eastward point attained by Ross sixty years before, the explorers discovered a new land, which they named King Edward VII. Land. One of

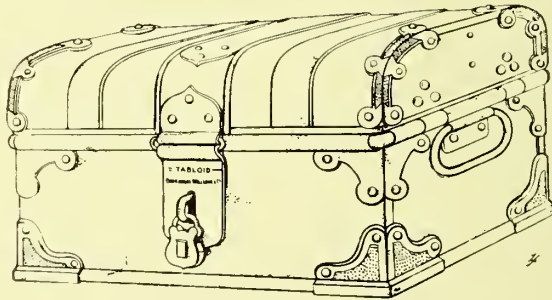
the most noteworthy features of the Expedition was the arduous sledge journey undertaken by the commander, Captain SCOTT, accompanied by Lieutenant SHACKLETON and Dr. WILSON. This journey over the ice occupied three months and the record latitude of  $82^{\circ} 17'$  South was reached.

One of the 'TABLOID' BRAND  
MEDICINE CASES carried by the  
National Antarctic Expedition



Reliability  
essential

On sledge journeys, the question of weight is of great moment. The traveller on such occasions must carry but the barest necessities, and of these the lightest procurable. The medicine chest is an important item, for upon the efficiency of its contents the lives of the explorers may depend. Every drug carried must be of the utmost reliability, in the most compact state, and capable of withstanding an extremely low temperature.



One of the 'TABLOID' BRAND MEDICINE CHESTS carried  
by the National Antarctic Expedition

That 'Tabloid' Medical Equipments fulfil all requirements has been proved again and again. They enable the traveller to carry a comparatively large supply of medicines, and may be used under conditions which would render the carriage and administration of ordinary preparations impossible.



To the enthusiasm of Sir CLEMENTS MARKHAM, K.C.B., then President of the Royal Geographical Society, the successful organisation of the National Antarctic Expedition was largely due. Referring to the 'Tabloid' Medical Equipment of the *Discovery*, he reports:—

National Antarctic Expedition,  
1, Savile Row,  
Burlington Gardens, W.

The Medical Equipment of the Exploring Ship of the National Antarctic Expedition was entirely supplied by Messrs Burroughs, Wellcome & Co., and, proved in every way most satisfactory.

The few other drugs and preparations which were taken with the Expedition were only supplied for purposes of experiment, and, can in no way be regarded as part of the medical equipment.

*Clements Markham*

*27. April 1905.*



S.S. "DISCOVERY"  
NATIONAL ANTARCTIC EXPEDITION

DR. KÆTTLITZ, the Senior Medical Officer to the Expedition, reports:—

“ *Discovery* ANTARCTIC EXPEDITION

“The Medical Equipment of the *Discovery* Exploring Ship, of the National Antarctic Expedition, was entirely supplied by Messrs. Burroughs Wellcome & Co., mostly in the form of ‘Tabloid,’ ‘Soloid’ and ‘Enule’ preparations.

“The preparations proved in every way most satisfactory, and there was no deterioration of any of them, in spite of the conditions of climate and temperature to which they were exposed. The few other drugs and preparations which were taken with the Expedition were only taken for purposes of experiment.

‘Tabloid’  
preparations  
proved  
satisfactory

“The cases supplied by Burroughs Wellcome & Co. to us have also been found satisfactory; the small leather one was very useful upon sledge journeys, being light and compact. The No. 250 ‘Tabloid’ Case was used for some weeks at the camp eleven miles north of the ship, when the whole ship’s company was engaged in sawing and blasting the ice, and it was found very convenient.

“The other cases were useful in our cabins, etc., for a handy supply.”

*Reginald Kættlitz*

The relief ship *Morning* was also provided with a ‘Tabloid’ Medical Equipment, and the Medical Officer, Dr. GEORGE DAVIDSON, sends the following report:—

“ ANTARCTIC RELIEF SHIP *Morning*

“I wish very heartily to express my perfect satisfaction with the medical equipment which was supplied to the Antarctic Relief Ship *Morning* by Burroughs Wellcome & Co. When I say that it was compact, yet complete, that everything was just to hand, that during a period of two years and three months I was never at a loss to find the medicine I wanted, and that without delay, I need say no more to emphasise the extraordinary convenience which a ‘Tabloid’ and ‘Soloid’ outfit is to a ship such as ours, whether at sea or in the ice. I found the ‘Tabloid’ and ‘Soloid’ products to remain unchanged throughout the whole period of my commission, and to equal in efficacy the best medical preparations I have yet had occasion to use. It is impossible to realise without experience how much can



be condensed by this mode of exhibition in a very small space. I strongly advise all intending explorers to betake themselves to Burroughs Wellcome & Co. for their medical equipment, and they will not be disappointed."

George A. Davidson  
*+*

Dr. Wilson's  
testimony

From Dr. EDWARD WILSON, also, who was in charge of some of the sledge journeys from the *Discovery*, the following report has been received :—

" *Discovery* ANTARCTIC EXPEDITION

" Though there was but little serious illness on the *Discovery* during the recent Antarctic Expedition, the 'Tabloid' preparations and the cases were put to a fairly rigorous test, not only in the ship, but on the various sledge journeys that were undertaken, during which they experienced temperatures as low as 68° below zero, and much rough handling, without any loss in efficiency and usefulness. Certain of the 'Tabloid' Ophthalmics were freely used for snow-blindness, and were found to be most convenient."

*Edward A. Wilson.*

So satisfactory, indeed, did 'Tabloid' products prove upon this voyage, that Captain Scott has again selected them for use during his present attempt to reach the South Pole in the *Terra Nova*.

The Scottish National Antarctic Expedition, covering a period of nearly two years, and comprising two separate voyages of the *Scotia*, was brought to a very satisfactory termination. To the *Scotia* belongs the distinction of having attained the latitude of 74° 1' South. Burroughs Wellcome & Co. supplied the entire medical equipment, which gave the utmost satisfaction.

Dr. J. H. Harvey Pirie, the Medical Officer of the *Scotia*, reports as follows :—

" I may say the 'Tabloid' medicines were very satisfactory, and, especially at sea, they are most convenient, as in rough weather it is quite impossible to do any accurate weighing or measuring with ordinary drugs."

In each instance the medicine chests were brought back, and the remaining contents were found to have

retained their therapeutic activity, notwithstanding the rigour of the climate to which they had been subjected.

Sir ERNEST H. SHACKLETON, on his memorable voyage with the *Nimrod*, when he penetrated to within ninety-seven miles of the South Pole, took with him as his sole medical equipment 'Tabloid' Medicine Chests and Cases, and the subjoined reports show that under the trying and difficult conditions of Antarctic exploration 'Tabloid' medicines maintained their reputation for efficiency and stability.

*Copy of Report dated Sept. 17, 1909:—*

The British Antarctic Expedition, 1907-9, was equipped with a very complete Medical Equipment contracted for solely by Messrs. Burroughs Wellcome and Co., and consisting of 'Soloid' and 'Tabloid' Preparations, which are the only forms that can be conveniently carried and preserved under such conditions.

The packets of Compressed Dressings are an extremely convenient form.

The Congo Cases (No. 251, 'Tabloid' Brand) were always used when at our base, and both the party of three who reached the South Magnetic Pole, and the party under Lieut. Shackleton, who attained a point 97 miles from the Geographical South Pole carried a brown leather 'Tabloid' Case, and all the 'Tabloid' products that remain are now in as good condition as when first handed over to my care two years ago.

Reliability of  
'Tabloid'  
products

The *Nimrod* was also supplied with 'Tabloid' Cases and Equipment.

The 'Tabloid' Photographic Outfit supplied by Burroughs Wellcome & Co., proved entirely satisfactory.

*Signed*

BRITISH ANTARCTIC EXPEDITION, 1907-9

ERNEST H. SHACKLETON

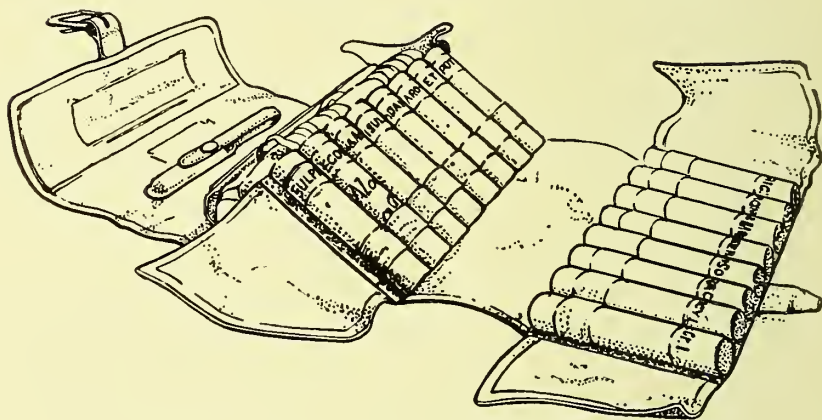
*Commander*

ERIC P. MARSHALL, M.R.C.S., L.R.C.P.

*Surgeon to the Expedition*

# THE 'TABLOID' MEDICINE CASE CARRIED "FARTHEST SOUTH"

BY SIR ERNEST H. SHACKLETON



The full record of this case, as given in the report from the Surgeon to the Expedition, is printed below.

*Copy of Report dated Sept. 17, 1909 :—*

A much travelled  
case

The B.W. & Co. Brown Leather 'Tabloid' Case herewith was :—

Taken with party of six that made the ascent and reached summit of Mount Erebus, 13,350 ft., March 5th–11th, 1908.

Used on Southern Journey under Lieut. Shackleton

\*Oct. 28th, 1908 – March 4th, 1909.

Latitude 88° 23' S. Longitude 162° E.

Distance covered in this journey, 1728 statute miles.

Used on S. Depot Laying Party, from Sept. 20th to Oct. 15th, 1908. Distance covered, 311 miles.

Taken on Depot journeys to Hut Point.

Aggregating 150 statute miles.

Medicines quite satisfactory.

*Signed*

E. P. MARSHALL, M.R.C.S., L.R.C.P.

*Surgeon to the British Antarctic*

*Expedition, 1907–9*

\* Reached "Farthest South" Jan. 9, 1909.



## FOR TRAVELLERS AND TOURISTS

'Tabloid' Equipments, however, are not intended exclusively for military and exploring expeditions, but have a far wider range of usefulness. Their utility extends to the traveller and tourist who, for knowledge or pleasure, may be going "far from the busy haunts of men." That 'Tabloid' outfits are regarded as being an indispensable adjunct to the equipment is proved by the large number of world-famous travellers who have provided themselves with 'Tabloid' Chests and Cases.

For the Egypt and India Tour in 1902, H.R.H. The Duke of Connaught was provided with a 'Tabloid' Equipment. The medical equipment for the journey to Japan, in 1905, of Prince Arthur of Connaught was also supplied by Burroughs Wellcome & Co.

Royal  
patrons

Another world-wide traveller, Mr. Harry de Windt, the story of whose wanderings forms an interesting record of modern travel, carried a 'Tabloid' outfit upon his great journey across Siberia. In the account of his travels, Mr. de Windt emphasises the great help and value the equipments have been to him.

Coming down to a quite recent date, still more testimony is forthcoming of the esteem in which the 'Tabloid' Products are universally held. For his Africa hunting expedition, Ex-President Roosevelt was supplied with a 'Tabloid' Congo Medicine Chest. Upon Mr. Roosevelt's return to America, the Medical Officer in charge of the expedition, Lieutenant-Colonel E. A. Mearns, writing to Burroughs Wellcome and Co. from the National Museum, Washington, respecting the chest, reports:—

Mr. Roosevelt's  
satisfaction

"We found it very satisfactory and useful."

These commendations of 'Tabloid' Brand Chests and Cases, expressed after the outfits have successfully withstood the rough usage inseparable from travel, sufficiently attest to the excellence of the products of Burroughs Wellcome & Co.



#### THE SMALLEST MEDICINE CHEST IN THE WORLD

This tiny gold medicine chest is fitted with twelve square medicine chest bottles containing 300 doses of 'Tabloid' Brand Medicaments, equivalent to 15 pints of fluid medicine.

HISTORICAL EXHIBITION  
OF  
RARE AND CURIOUS OBJECTS  
RELATING TO  
MEDICINE, CHEMISTRY, PHARMACY  
AND THE ALLIED SCIENCES  
TO BE HELD IN LONDON, 1913

---

ORGANISED BY, AND UNDER THE DIRECTION OF  
HENRY S. WELLCOME

WITH the object of stimulating the study of the great past, I have been for some time organising an Exhibition in connection with the history of medicine, chemistry, pharmacy and the allied sciences, my aim being to bring together a collection of historical objects illustrating the development of the art and science of healing, etc., throughout the ages.

For many years I have been engaged in researches respecting the early methods employed in the healing art, both among civilised and uncivilised peoples. It has been my object in particular to trace the origin of the use of remedial agents, and enquire why and how certain substances came to be employed in the treatment of disease.

A consideration of such questions is always of interest and sometimes adds to our knowledge.

I anticipate that the Exhibition will reveal many facts, and will elucidate many obscure points in connection with the origins of various medicines, and in respect to the history of disease. It should also bring to light many objects of historical interest hitherto known only to the possessors and their personal friends.

I shall greatly value any information sent me in regard to medical lore, early traditions or references to antient medical treatment in manuscripts, printed works, etc. Even though the items be but small, they may form important connecting links in the chain of historical evidence. Medical missionaries, and others in contact with native races, can also obtain particulars of interest in this connection. Every little helps, and, as I am desirous of making the Historical Medical Exhibition as complete as possible, I shall be grateful for any communication you may be able to make.



It is my desire ultimately to place before the profession, in a collected form, all the information obtained.

The success of the Historical Medical Exhibition will depend largely upon the co-operation of those interested in the subject with which it deals, and I again appeal, therefore, to all who possess objects of historical medical interest, to render their kind assistance by lending them to me so that the Exhibition may be thoroughly representative. I should also highly esteem your kindness if you would inform me of any similar objects in the possession of others.

I need hardly say that the greatest care will be taken of every object lent. All exhibits will be insured (also while in transit, if requested), and packing and carriage both ways will be paid.

The Exhibition will be *strictly professional and scientific in character*, and will not be open to the general public.

The response to the preliminary announcement has been beyond my expectations, and this, together with the many valuable suggestions received from leading members of the medical profession, chemists and others at home and abroad, has prompted me to considerably widen the scope of the undertaking since it was first projected.

I have been strongly urged, and have now decided, to hold the Historical Medical Exhibition at the same time as the International Medical Congress, which is fixed to take place in London in the year 1913.

This decision will, I have no doubt, suit the convenience of the many medical practitioners from all parts of the world, who will be visiting England on the occasion of the Congress, and the intervening time will enable me to make the Exhibition more comprehensive, and to include many objects of exceptional interest that have been promised from different quarters of the globe.

Hints and suggestions in connection with the Exhibition will be much appreciated.

HENRY S. WELLCOME

SNOW HILL BUILDINGS  
LONDON, E.C., ENGLAND

## PHOTOGRAPHIC METHODS OF TO-DAY

IN the early days of photography the facts were few and the fallacies many. Such a state of things was natural and understandable in a new science; but it is not so easy to recognise why, as the practice of photography developed and spread, the fallacies increased at a greater rate than the facts.

Early days

That "experience teaches" is undoubtedly a fact, but it is sometimes also a fallacy. An example will make the paradox plain. A photographic novice, whose early attempts in negative-making have been uncertain in result, is induced to change from one plate to another, until, by some lucky combination of circumstances, he gets from a certain packet of plates, negatives which he considers of far better quality than any he has previously obtained. He imagines that *experience* has taught him that these plates are better than the others, and enthusiasm leads him to proclaim this as a fact. It is more likely than not that he has chanced to give these plates the correct exposure, whereas previously fortune had not favoured him in this respect.

Does  
experience  
always  
teach  
fact?

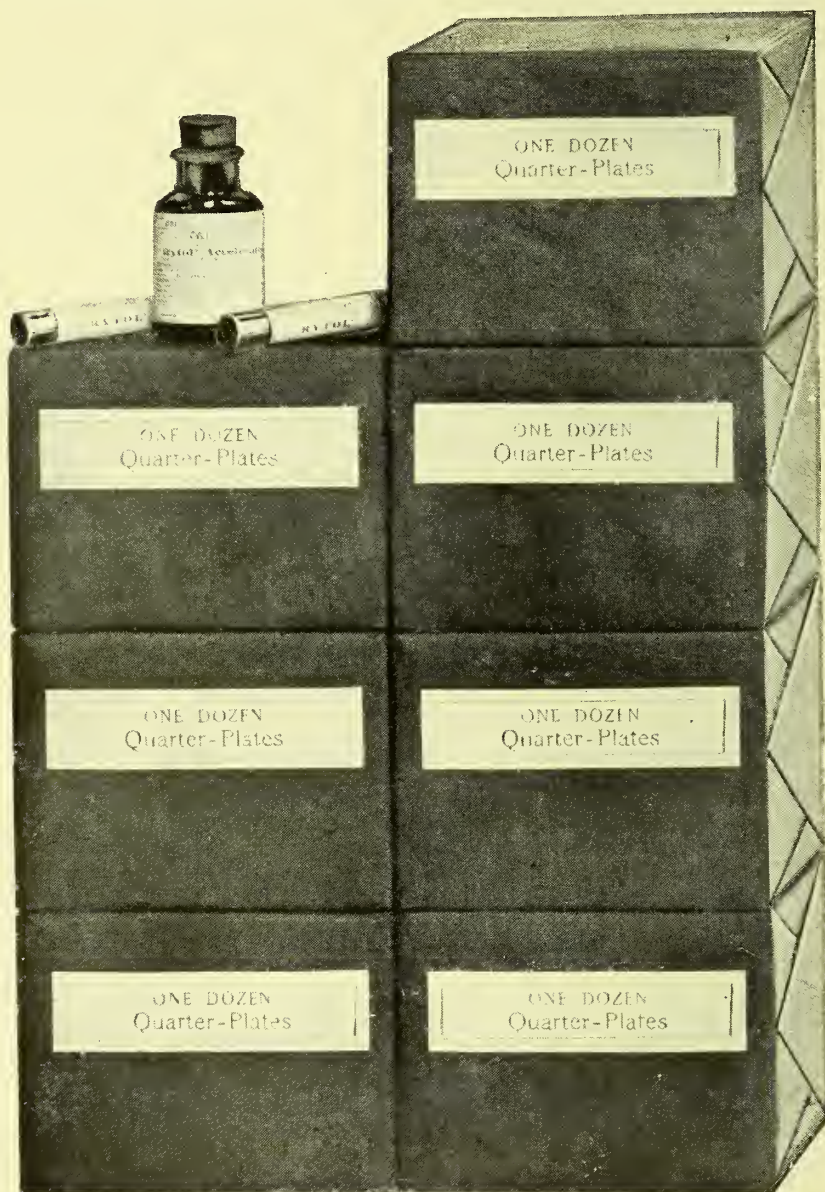
Thus, we see that the experience which is based upon chance results may lead to mistaking fallacy for fact. Consider for a moment how rapidly the practice of photography has spread; how few, comparatively, of the early workers learnt the science from reliable text-books or competent teachers; how many, even now, are content to leave exposure to chance and development to undeveloped judgment. In such circumstances it is no wonder that many fallacies are circulated—chiefly by word of mouth, but sometimes also in print—which masquerade under the title of photographic facts.

Mistaking  
fallacy  
for fact

The moral is to take advice with caution, except from those who have studied the science as well as the practice of photography. It is a wise thing to join a photographic society, where statements can be submitted to discussion by experienced workers, and to study the teachings of writers of authority, either in standard text-books or in the photographic press. Above all, it is wise to take full advantage of

Wise things

Photograph illustrating the great concentration and developing power  
of 'TABLOID' 'RYTOL' Universal Developer



(Approx. one-third actual size)

Each carton of 'TABLOID' 'RYTOL' Universal Developer contains a bottle and two tubes (*as represented above*), the contents of which are more than sufficient to develop the SEVEN DOZEN plates shown in the photograph.



the scientific study and the research work which many large manufacturers of plates, chemicals and apparatus place at the disposal of their customers. These large concerns are able to employ men of deep scientific knowledge and wide experience, who devote their whole energy and skill to perfecting the products of their firms. To do this they must by scientific experiment carefully sift the facts from the fallacies, so that no errors can creep in to detract from the excellence of the goods manufactured under their advice.

No large firm can afford to risk its reputation on fallacies; it must be sure of its facts. The quality of the materials it employs must be safeguarded by scientific means, and formulæ must be subjected to the most rigorous tests. Because of this, it is possible for large firms who employ scientific means, to ensure the high quality of their products and to place before their customers, facts which go far to remove the difficulties which fallacies have introduced.

Safeguarded  
by science

The firm of Burroughs Wellcome & Co. is recognised as one which has been foremost in employing scientific research, not only with the object of perfecting the products which it issues, but in order to simplify the practice of the sciences for which these products are intended.

As chemists, the firm's first care is naturally that of placing pure chemicals and tested formulæ at the disposal of every photographer—beginner and expert. The next is to present these chemicals so that they will keep perfectly, be uniformly active, constantly reliable, and always available for use with the minimum of trouble. All this is accomplished in 'Tabloid' Photographic Chemicals.

Pure  
chemicals  
and tested  
formulæ

B. W. & Co. have also given photographers the benefit of researches carried out by their scientific experts; by the issue of useful tables and cards for dark-room use, and by the publication of the 'Wellcome' Photographic Exposure Record and Diary. This book contains a simple mechanical device for calculating correct exposure, which is used by photographers in all quarters of the globe.

Scientific facts which can be applied to the manufacture of chemicals for photography are embodied in 'Tabloid' Photographic Chemicals; others which simplify processes



H. R. H. THE DUKE OF CONNAUGHT and PARTY round  
The Major Wilson Memorial at the Matoppos, Rhodesia (from a  
photograph by Mr. Ernest Brooks)

H.M.S. BALMORAL CASTLE

Jan. 6, 1911

Dear Sirs,

While acting as official photographer to H.R.H. the Duke of Connaught during his tour in South Africa, I used 'Tabloid' Photographic Chemicals to the exclusion of anything else.

My whole outfit for the development of plates, films and papers, and for toning prints, was comprised in a metal case measuring  $9 \times 7 \times 6$  inches.

The only developer I used was 'Tabloid' 'Rytol.' It is the best developer I know, and on this tour alone has yielded me over 500 half-plate negatives of first-class quality.

Although my developing was all done *en route*, 'Tabloid' 'Rytol' Developer enabled me to prepare a fresh active solution in a moment, wherever I might be.

It is wonderful what beautifully-graded negatives this developer yields. It gives full details in the shadows, and yet keeps the high lights soft and well modulated even in most difficult subjects. For retaining the full printing value in cloudy skies I know nothing to equal it.

The convenience, portability and keeping qualities of your chemicals are further points in their favour.

Yours faithfully,

Ernest Brooks

and methods are embodied in the literature issued by the firm, in either case these facts, ascertained by scientific research, serve to abolish many photographic fallacies.

Scientific  
facts

#### PHOTOGRAPHY FOR TOURISTS AND TRAVELLERS

With many amateurs the most important work of the year is crowded into their few weeks' annual holiday. It is then that the majority of workers look forward to securing a batch of negatives which will serve them during the later months of the year for preparing mementos of a pleasant vacation, for illustrating lectures of their tours abroad, or for use in preparing their pictures for the winter exhibitions. It is, therefore, of vital importance that no unforeseen mishaps should occur to ruin the results which are expected.

Importance  
of holiday  
negatives

In this connection nothing can be more interesting or more convincing than to state what methods and materials have been adopted by leading press photographers and explorers in order to ensure success in their work. Such men can afford to take no risks. They must make certain of their results, even though they work under the most adverse conditions of climate and circumstance.

Experiences of  
leading press  
photographers  
and explorers

On account of the great success he achieved with 'Tabloid' Photographic products during the South African tour of H.R.H. the Duke of Connaught, Mr. Ernest Brooks, private photographer to H.M. King George, relied entirely upon 'Tabloid' Chemicals for the production of the photographs he took in connection with the King's Durbar at Delhi.

Mr. H. C. Shelly, a famous English war correspondent, thus describes his experiences in the South African War: "I count it to myself for wisdom that in the hurry of my departure for the front I did not forget to include in my outfit a liberal supply of 'Tabloid' Photographic Chemicals, and often in my tent at Modder River did I muse upon my good fortune in that respect. That said outfit was constantly undergoing a process of diminution, and I really think I could trace my path through South Africa by the various articles I had to shed from time to time as the question of transport became more and more urgent. But never once did I part with any of my 'Tabloid' Chemicals.

In the  
South African  
War





Print from Negative Showing Improvement Effected by ONE  
application of  
'TABLOID' CHROMIUM INTENSIFIER

“ Why should I, to begin with ? Even when every ounce and square inch of luggage had to be debated over in view of the all-important question of food supply, the bulk and weight of the ‘ Tabloid ’ Chemicals were too insignificant to be taken into consideration. But the more important question is, what should I have done without them ? Even the most experienced photographic worker wishes to make sure now and then that he is working on the right lines, and that he is really getting what he thinks he is, and how much more important it was that I should be certain that I had not been sent such a journey for nothing. The pages of my paper at home were waiting for pictures of the war, and it was imperatively necessary that from time to time I should be able to make sure that those pages were not waiting in vain. Making sure

“ As my ‘ Tabloid ’ Chemicals enabled me to make these important tests, do you wonder at the tenacity with which I stuck to them ? I cannot recall the least suspicion of failure with any one of them. The water with which I had to compound them, Modder River water, which has left the films that came under its influence with a surface akin to fine sand-paper, is not exactly the liquid that the careful photographer would elect to use by preference, but it seemed to have no bad effect on these chemicals. Nor did they suffer in any way by the extremes of temperature to which they were subjected. I had some cartons left when I returned, but these, which had made two sea voyages of 5000 miles and had been in South Africa about nine months, had lost none of their good qualities. Some of these cartons had been in stock for several years before they were put to the tests I have described.” Severe tests

Among others who have carried ‘ Tabloid ’ Photographic Chemicals as part of their travelling equipment for an exploring expedition may be mentioned Sir Sven Hedin, the story of whose intrepid journeys in Tibet is related in “ Trans-Himalaya.” He visited Tashi-Lunpo, one of the forbidden cities, where probably no European had ever set foot before, and interviewed the Tashi Lama, the venerated In Tibet



spiritual chief of the Buddhist religion, by whom he was cordially received.

In the  
Antarctic

Sir Ernest H. Shackleton took a complete outfit of Photographic chemicals on his perilous journey into the Antarctic zone (when he got within 97 miles of the South Pole), and pronounced them quite satisfactory. 'Tabloid' Photographic Chemicals were also taken by Captain Scott on his famous Antarctic voyage in the *Discovery*. So satisfactory did the 'Tabloid' products prove on this voyage, that Captain Scott has again selected them for use during his present attempt to reach the South Pole in the *Terra Nova*.

Mr. R. L. Jefferson, F.R.G.S., in his book, "Through a Continent on Wheels," writes: "I should like to mention that this firm (B.W. & Co.) prepared 'Tabloid' Photographic Chemicals in a compressed form, and those photographers who desire to develop their plates *en route* cannot do better than adopt their portable and reliable outfits."

Experiences  
of famous  
travellers

Mr. L. N. G. Ward, a traveller whose photographic work is of a high order, uses 'Tabloid' Chemicals. Some of his most interesting photographs were produced with 'Tabloid' Photographic Chemicals in a part of Africa where the climate is all against successful work. Another well-known traveller, Lionel Declé, of the *Daily Telegraph*, London, used them to develop no less than 4000 plates in Equatorial Africa.

'Tabloid' Photographic Chemicals have been favourably reported upon by Mr. E. Senior, lecturer on photography at the Birkbeck College, London, etc. Referring to 'Tabloid' Pyro Developer, he said: "The results I obtained were in the highest degree satisfactory, and I consider them eminently satisfactory for tourists."

How and why  
to develop  
on tour

To ensure successful results on holiday or on tour, the best way would appear to be that of checking one's results by developing some negatives at least before leaving the district, and this can be accomplished without loading oneself up with a freight train of chemicals or massive carboys of solutions. All that is wanted is a small collection of 'Tabloid' Photographic Chemicals.



TRADE MARK 'SOLOID' BRAND

## PHOTOGRAPHIC STAINS

VERY striking and distinctive effects are produced by the use of these stains. Almost every kind of picture, whether it be seascape, woodland scene or fireside study, has its beauty enhanced if the colour is carefully selected in accordance with the subject.

A charming sunset effect, in particular, is obtained by using 'Soloid' Photographic Stain (Red).

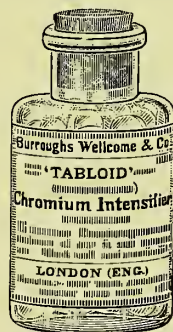
*Supplied in tubes of 6 products*

TRADE MARK 'TABLOID' BRAND

## CHROMIUM INTENSIFIER

A single application of 'Tabloid' Chromium Intensifier will effect a wonderful improvement in an apparently useless negative.

It is permanent in its results, and, moreover, contains no highly-poisonous salts of mercury or other chemical.



*Supplied in bottles of 25 products*

TRADE  
MARK

'TABLOID' BRAND 'RYTOL'

TRADE  
MARK

UNIVERSAL DEVELOPER

PRODUCES PERFECT PLATES AND PRINTS

An ideal developer for the expert or the tyro.

Suitable for all kinds of plates and paper.

Gives clean, sharp negatives and prints.

Dissolves immediately in water and makes a clear, bright solution.



Measurements:  $3\frac{1}{4} \times 2 \times 1\frac{1}{2}$  in.

Does not stain the fingers or irritate the skin.

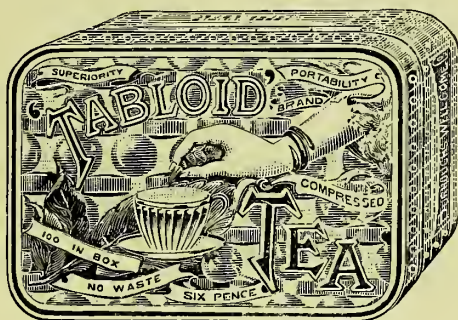
Excellent for lantern slides, producing a fine range of colours—black, brown, sepia, purple and red—without the addition of ammonium carbonate.

*'Tabloid' 'Rytol' Universal Developer is sold in cartons containing materials for preparing more than half-a-gallon of concentrated developer.*

TRADE  
MARK

## ‘TABLOID’ BRAND TEA

‘TABLOID’ Tea is absolutely pure, and of the finest quality. There is no waste, and therefore greater advantage in use. Exactness and equality in strength and flavour. Convenience and portability render it specially useful for travellers, etc.



*Supplied in tins of 100 and 200*

TRADE  
MARK

## ‘TABLOID’ BRAND ‘SAXIN’

TRADE  
MARK

The most concentrated and portable sweetening agent. Each product is equivalent to a lump of best loaf sugar. A fitting companion to ‘Tabloid’ Tea for picnic parties, camps, tourists, travellers, and for all occasions when economy of space is important. A small bottle, containing 100, 200 or 500 products, may be carried easily in the vest pocket.



*Supplied in bottles of 100, 200 and 500*



TRADE MARK 'HAZELINE' CREAM

A natural cold cream and nutrient dressing for the skin, which it will keep soft, supple, and in the pink of condition.



'HAZELINE' CREAM is quite pure, never turns rancid, and is the best emollient for the sick-room or the toilet table.

*Supplied in collapsible tubes of two sizes, and in glass pots.*

TRADE MARK "HAZELINE" SNOW

"HAZELINE" SNOW is the dainty toilet preparation which helps to preserve the youthful beauty of the skin and complexion. It imparts a silky softness to the skin and a radiant beauty to the complexion. Being quite free from greasiness, it may be used daily without fear of promoting the growth of hair.



*Supplied in glass pots*

# FIRST-AID AND ITS ADAPTATION TO MODERN CONDITIONS

At the present time great attention is being given to the subject of first-aid. Not only individual members of the public, but companies and even legislative assemblies are taking it up in a most earnest and enthusiastic manner.

Several of the railway companies have, on their own initiative, instituted a first-aid system, and certain of the North American States have passed laws requiring first-aid material to be carried on all trains running through the State. One State has a law in force compelling first-aid material to be kept in all factories employing a certain number of people, in which there is machinery of any kind.

Progressive  
States

Probably one of the most interesting first-aid installations, is that which has recently been completed at the United States Government Printing Office, at Washington. This really passes somewhat beyond the true definition of "first-aid," since it consists of a model private hospital or emergency room, in charge of two fully-qualified physicians.

The hospital is a commodious airy apartment, situated in a central position of the works, so that it is readily accessible from all parts of the building. The room is connected by telephone with the various departments, and, in answer to an urgency call, an ambulance is at once despatched from the hospital. In the fitting-up of the hospital nothing has been omitted that can, in any way, be of assistance to the physician, or contribute to the comfort of the patient. As a result of such prompt and skilful attention, those who have suffered some minor injury, or are the victims of temporary illness, are often enabled to resume their duties within an hour or so.

A first-aid  
hospital

This case only serves to illustrate the importance which is, nowadays, attached by the highest authorities, both medical and lay, to the question of first-aid. Accidents are liable to happen to anyone, and it is in order to forestall the serious consequences frequently arising from an untended wound, that physicians have united to arouse the interest of the public to the necessity and advantages of giving proper care to an injured person.

Importance  
of first-aid

The principle of first-aid is not to supplant the physician but to render temporary assistance to the sufferer until the arrival of a professional attendant.

When accidents occur, however, it frequently happens that the efforts of those most capable of alleviating the pains of the injured person are, to a great extent, frustrated either by a total absence of dressings, etc., or the supply available is quite inadequate to meet the demands of the case.

Burroughs Wellcome & Co. have, with the object of providing means for efficiently rendering first-aid, designed and introduced a series of compact outfits of emergency dressings, etc., under the title of 'Tabloid' First-Aid.

These outfits are ideal for the administration of first-aid before the arrival of medical assistance, and provide the means of averting complications which often occur from the neglect of abrasions and wounds into which septic matter has been introduced.

Each 'Tabloid' First-Aid is a compact, portable equipment of bandages and dressings, specially selected for emergency use. The high quality of the cases and contents, which conform to B. W. & Co.'s unique standard, and their general adaptability, make these outfits ideal first-aid equipments.

No one has grasped the possibilities of the 'Tabloid' First-Aid more quickly than the aviator. With the rapid intuition characterising him, he has recognised, in the 'Tabloid' equipment, yet another rung in the ladder of success. The aviator is peculiarly liable to accidents, and it is with the object of minimising the effects of these that he has so readily adopted 'Tabloid' First-Aid.

From the early days of aviation, when Andree, in his historical attempt to reach the North Pole, took with him a 'Tabloid' Medicine Chest as his sole medical equipment, the products of Burroughs Wellcome & Co. have occupied an important position in the outfit of the airman.

In succeeding pages there will be found some interesting records of aviators who have placed their trust in 'Tabloid' First-Aid.

'Tabloid'  
First-Aid

Appreciated  
by the  
aviator



TRADE  
MARK

# 'TABLOID' BRAND FIRST-AID FOR

Automobilists, Aviators, Yachtsmen, Sportsmen, Travellers,  
Tourists, Boy Scouts, and residents in out-of-the-way districts.

Compact outfits of bandages and first-aid accessories, etc., suitable  
for use in emergencies, when travelling, or at home, especially where  
medical aid is not immediately available.

## NO. 702 'TABLOID' FIRST-AID (*Registered*)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic  
Ammonia, for use as "Smelling Salts," 'Borofax' Brand Boric Acid  
Ointment, 'Hazeline' Cream, sal volatile, Carron oil (solidified), tourniquet,  
jaconet, plaster, protective skin, scissors, pins, etc., and eight tubes of  
'Tabloid' and 'Soloid' Brand products.



In Rex Red, Royal  
Blue or Brewster  
Green Enamelled  
Leather (*as illus-  
trated*).

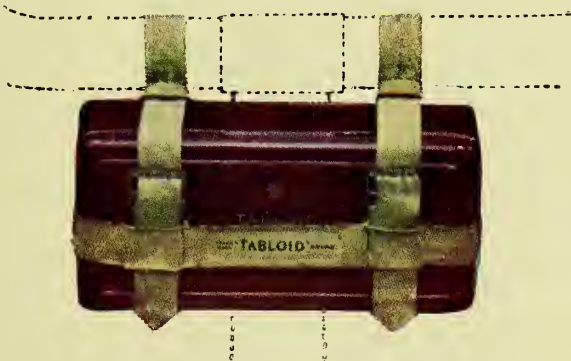
Price  
in  
London,  
50/0

No. 702 'Tabloid' First-Aid. Measurements:  $7 \times 5\frac{1}{4} \times 2\frac{3}{4}$  in.

## NO. 709 'TABLOID' FIRST-AID (*Registered*) (For Boy Scouts)

Contains 'Tabloid'  
Bandages and Dress-  
ings, 'Vaporole'  
Aromatic Ammonia,  
for use as "Smelling  
Salts," 'Borofax'  
Brand Boric Acid  
Ointment, Carron oil  
(solidified), jaconet,  
plaster, protective  
skin, camel-hair  
brush and pins.

In Rex Red (*as  
illustrated*) or Royal  
Blue Enamelled  
Metal.



No. 709 'Tabloid' First Aid (for Boy Scouts)  
Measurements:  $6\frac{1}{2} \times 3\frac{1}{4} \times 2$  in.

Price in London, 5/0

Belt or Cycle attachment (*as illustrated*), 6d. extra

## NO. 710 'TABLOID' FIRST-AID

A very compact and useful equipment, holding an efficient supply of accessories. It contains 'Tabloid' Bandage and Dressings, 'Tabloid' Boric Gauze and Swab, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax' Brand Boric Acid Ointment, Carron oil (solidified), adhesive plaster, camel-hair brush and pins.

In Scarlet Enamelled Metal

Price in London,  
2/0



No 710 'Tabloid' First-Aid  
Measurements:  $4 \times 3\frac{1}{8} \times \frac{5}{8}$  in.

## NO. 715 'TABLOID' FIRST-AID (Registered)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax' Brand Boric Acid Ointment, sal volatile, Carron oil (solidified), jaconet, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.



In Rex Red, Royal Blue (as illustrated), or Brewster Green Enamelled Metal, or in Aluminised or Black Japanned Metal.

Price in  
London,  
10/6

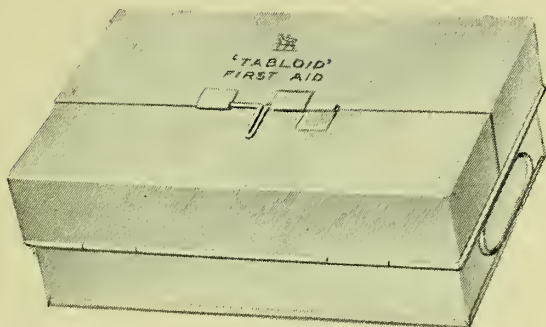
No. 715 'Tabloid' First-Aid  
Measurements:  $7\frac{1}{2} \times 4\frac{1}{4} \times 2$  in.

NO. 722 'TABLOID' FIRST-AID (*Registered*)

Contains 'Tabloid'  
Bandages and Dressings,  
'Vaporole' Aromatic  
Ammonia, for use as  
'Smelling Salts,'  
'Borofax' Brand Boric  
Acid Ointment,  
'Hazeline' Cream, sal  
volatile, Carron oil  
(solidified), tourniquet,  
jaconet, plaster, pro  
tective skin, scissors, pins,  
etc., and eight tubes of  
'Tabloid' and 'Soloid'  
Brand products.

In Rex Red, Royal  
Blue or Brewster Green  
Enamelled Metal, or in  
Aluminised Metal (*as  
illustrated*).

**Price in London, 25/0**



Measurements:  $6\frac{3}{4} \times 4\frac{3}{4} \times 2\frac{1}{4}$  in.

NO. 905 'TABLOID' PHOTOGRAPHIC OUTFIT  
(*Registered*)



A complete outfit of  
the celebrated 'Tabloid'  
Chemicals for develop  
ing, sepia toning, inten  
sifying, reducing, gold  
toning, fixing, etc.

Fresh, reliable solu  
tions without weighing  
or waste.

In Rex Red, Royal  
Blue, Imperial Green or  
Bright Scarlet Enamel  
led Metal (*as illustrated*).

**Price in London, 5/0**

No. 905 'Tabloid' Photographic Outfit  
Measurements:  $4 \times 4 \times 2\frac{1}{8}$  in.



NO. 231 'TABLOID' BRAND MEDICINE CASE  
(Registered)

(As suggested by Sir W. Moore)

This outfit, owing to its strong well-built metal case and the very comprehensive nature of the contents, is peculiarly well adapted for use as a home medical equipment for residents in foreign countries or in out-of-the-way places.



No. 231 'Tabloid' Brand Medicine Case  
Measurements:  $10\frac{3}{4} \times 7\frac{1}{2} \times 3$  in.

It was suggested by, and is fitted up in accordance with the instructions of, Sir W. Moore in his *Manual of Family Medicine for India*, and contains fifteen 1 oz. corked phials and one 4 oz. corked bottle of 'Tabloid' and 'Soloid' products, minor surgical instruments and dressings.

In Black Japanned Metal (as illustrated). Weight, about 6 lb. 14 oz.

**Approximate Price in London, £3 17 6**

With modified fittings, £3 10 0

When fitted with a thick felt cover, this case will bear the strain of rough transit to the most distant parts of the world without damage to its contents.



LOUIS  
PAULHAN

M. Paulhan won the first *Daily Mail* £10,000 prize for a flight from London to Manchester. He carried on this, and subsequent occasions, a No. 706 'Tabloid' First-Aid.

HUBERT  
LATHAM

Has made many successful flights, notably at Rheims and Blackpool. Held the height record in 1909.

Inset is a photograph of M. Latham's 'Tabloid' First-Aid Equipment.





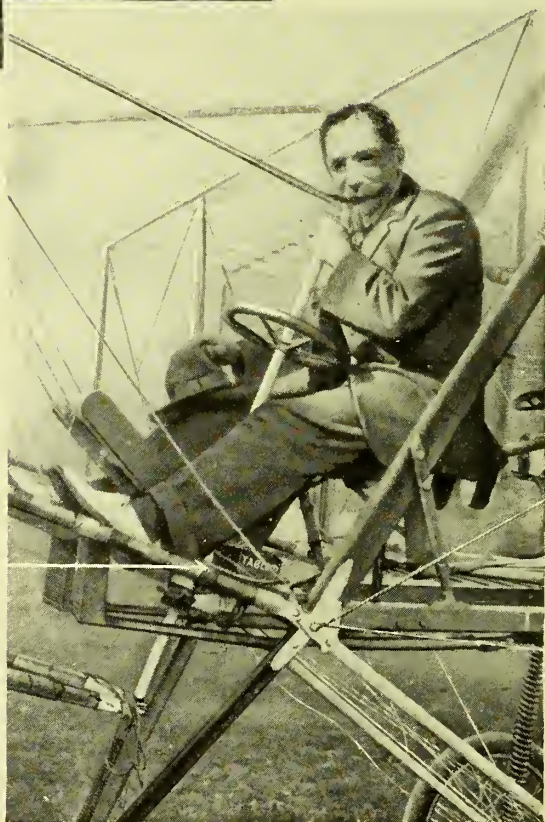
CLAUDE  
GRAHAME-  
WHITE

Won the Gordon-Bennett Cup for England at Belmont, N.Y., 1910, on a Llériot monoplane, seen in this photo with 'Tabloid' First-Aid Equipment attached to it.

S. F. CODY

Born in America; has done important work for the British War Office, and uses aeroplanes of his own design.

The arrow indicates the position of the 'Tabloid' First-Aid Equipment on the machine.







„BEAUMONT”

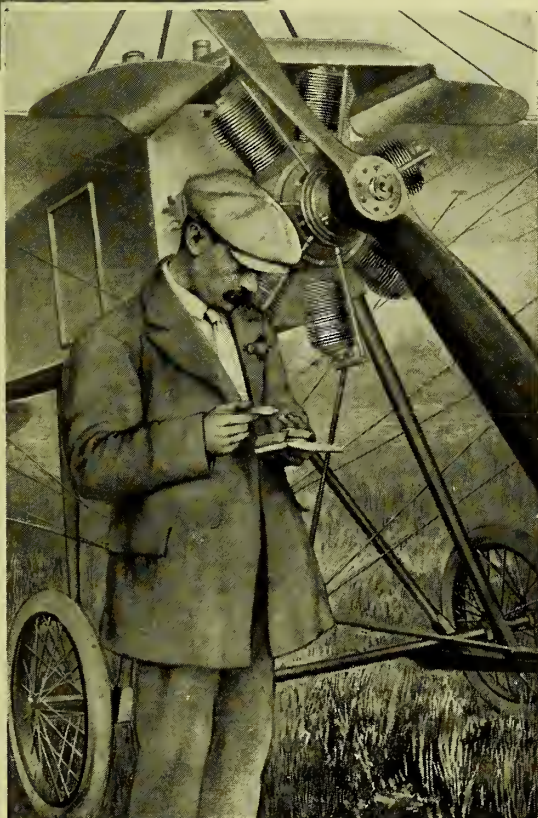
Naval-Lieut. Jean Conneau. Won over £20,000 in prizes in 1911.

Lieut. Conneau is seen examining the 'Tabloid' First-Aid, No. 706, which he carries on his flights.

JULES  
VÉDRINES

Won the Paris-Madrid Race in 1911 and holds a record for speed over the English Channel.

The photograph shows the aviator handling his 'Tabloid' pocket-outfit.





GARROS

Was second to "Beaumont" in the Paris-Rome Race, 1911. 'Tabloid' First-Aid forms part of his equipment.

CHARLES  
WEYMANN

Won the Gordon-Bennett Cup for America at Eastchurch, 1911, on a Nieuport monoplane.

He is shown holding a No. 706 First-Aid in his hand.





LIEUT. H. E.  
WATKINS, R.E.,

With the Vickers  
monoplane fitted  
with 'Tabloid' First-  
Aid.

Was to have joined  
the Mawson Ant-  
arctic Expedition as  
aviator, but was pre-  
vented owing to an  
accident.



GUSTAV HAMEL

The first official  
carrier of the British  
Aerial Post, and the  
first aviator to carry  
a lady passenger  
from England to  
France. In his hand  
may be seen the  
'Tabloid' First-Aid  
Equipment which he  
carries on his flights.





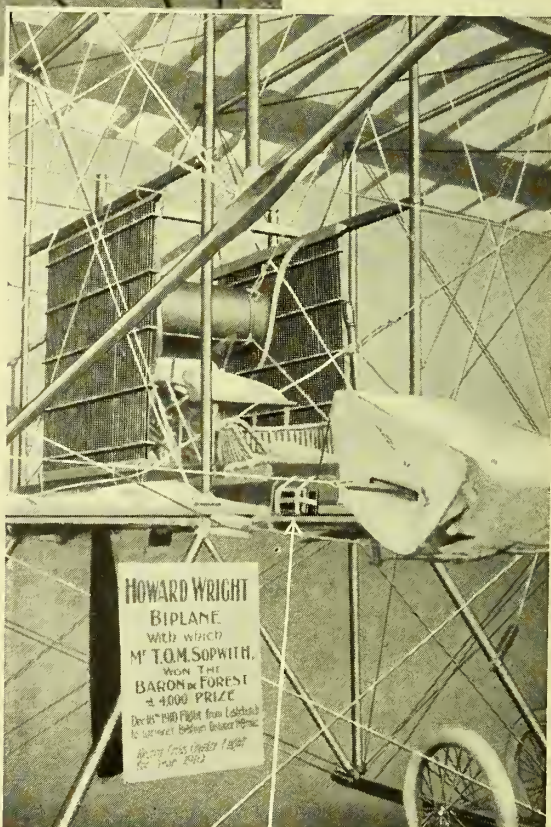
## EARLE OVINGTON

Mr. Ovington was the first official carrier of the U.S.A. Aerial Mail. The U.S.A. Postmaster-General is shown handing him a mailbag. Inset is a photograph of his 'Tabloid' First-Aid Equipment.

## T. O. M. SOPWITH'S AEROPLANE

Mr. Sopwith won the Baron de Forest prize, 1910. He flew from Brooklands to Windsor to be received by King George.

The arrow shows the position on the machine of the 'Tabloid' First-Aid Equipment.



PIERRE PRIER

Who flew from London to Paris without a stop, using a Blériot monoplane, reports. ". . . Ces trousses 'Tabloid' sont en effet excessivement pratiques." The position of his 'Tabloid' First-Aid Equipment on the machine is shown in this illustration.

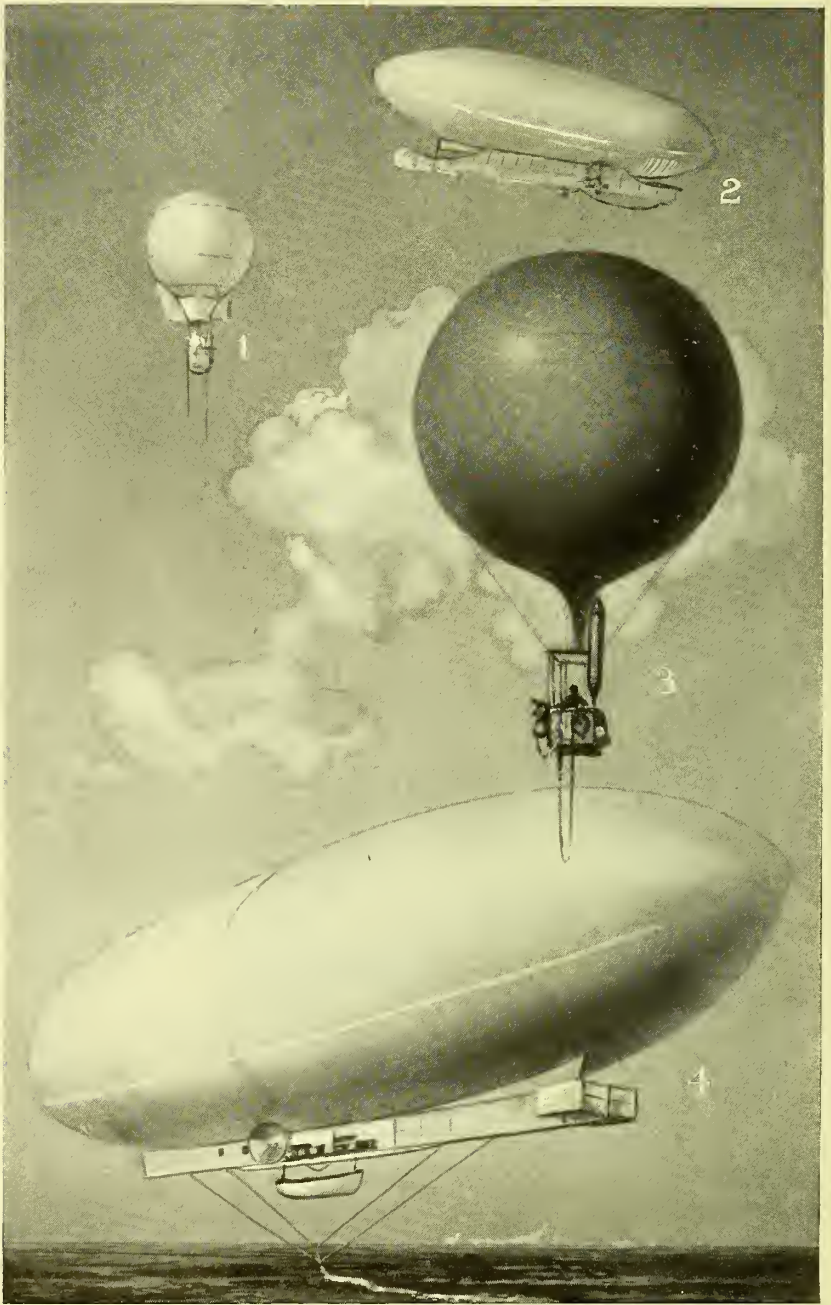


TABUTEAU

Winner of the Michelin Cup, 1910, flying 365 miles in 7 hrs. 48 mins. He made several records for height, duration and distance during 1911. The aviator is here shown examining his 'Tabloid' First-Aid Equipment.







- (1) Andree's balloon, the "Eagle," in which the explorer made his last ill-fated attempt to reach the North Pole.
- (2) Wellman's North Pole Airship.
- (3) The "Daily Graphic" England to Russia balloon, in which Turner, Maitland and Gaudron made the British long distance balloon record flight of 1117 miles in 31½ hours.
- (4) Wellman's Transatlantic Airship "America." Wellman and his companions covered a distance of 1008 miles in this airship, but were blown out of their course, and rescued at sea.





TRADE MARK 'TABLOID' BRAND

# FIRST-AID, No. 730

WALL-CASE FOR OFFICES, THEATRES, ASSEMBLY HALLS, ETC.

In theatres and other places where large numbers of people are congregated, accidents or cases of



Measurements:  $16\frac{1}{2} \times 10\frac{1}{2} \times 2\frac{1}{4}$  in.

sudden illness are continually occurring. 'Tabloid' First-Aid provides whatever remedy may be necessary to meet such a case of emergency.

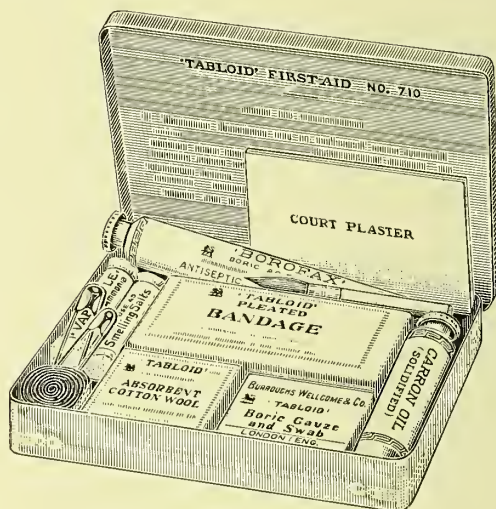


TRADE  
MARK

## 'TABLOID' BRAND FIRST-AID, No. 710

A POCKET COMPANION FOR THE SPORTSMAN  
AND ATHLETE

This outfit contains, in an ideal portable form, materials for the administration of first-aid in emergencies and before the arrival of medical assistance. It provides antiseptic dressings, the



Measurements :  $4 \times 3 \frac{1}{16} \times \frac{5}{8}$  in.

prompt use of which on cuts, abrasions, burns, etc., may prevent any serious complications. The outfit, being only about the size of an ordinary cigarette case, may be carried in the pocket without any inconvenience or discomfort.

It is neatly finished in bright scarlet enamelled metal.

*Outfits and refills may be obtained from all Chemists*





#### GATHERING HYOSCYAMUS (*Hyoscyamus niger*)

*Hyoscyamus*, one of the most difficult plants with which the herb farmer has to deal, is grown from seed sown about March or April. The young plants show above ground at the end of May or beginning of June. In the autumn they are separated if too close together. In the following May an aerial stem is developed, which rapidly grows until it reaches the height of three or four feet. The flowering takes place in June or July, when the crop is harvested.



#### DIGITALIS (*Digitalis purpurea*) IN FLOWER

*Digitalis* is obtained from carefully-selected wild seed, and any variations from the wild type are struck out. Great care is taken in collecting and drying the leaves, otherwise the medicinal activity would be adversely affected. Blighted, faded or defective leaves are rejected, and only the finest preserved for use.





A FIELD OF DATURA METEL

This handsome plant is interesting, as recent investigation has shown that it contains Hyoscine, Hyoscyamine and Atropine in proportions differing from those occurring in other solanaceous plants.



A FIELD OF BELLADONNA (*Atropa belladonna*)

*Belladonna* is grown from genuine wild seed. The best crops of leaves are obtained in the second, third or fourth year of the plant's growth, and it is at this period that the alkaloidal content is greatest.

## THE 'WELLCOME' MATERIA MEDICA FARM

THE vital importance of standardisation of drugs has always been recognised by Burroughs Wellcome & Co. Constant attention has been devoted to the subject, and the principle has been applied not merely to the chemical, but also to the vegetable and animal substances required for the preparation of the firm's products. The old method of picking samples of drugs by their colour and appearance has long been felt to be inadequate, and it has become necessary to view them in the more penetrating light of chemical analysis and of physiological tests.

Standardisation

Even the most experienced pharmacognosist may select drugs which, on the basis of form, colour and other physical characteristics, appear to possess a high standard of quality, yet on assay do not yield the requisite percentage of active principles.

In this connection, a paper by Carr and Reynolds, published in the *Chemist and Druggist*, shows in tabular form the very considerable range of variation in the proportion of active principles existing in samples of drugs bought on the market. Amongst the examples given are the following :—

Drug	Lowest per-centage	Highest per-centage	Active Principle determined
Belladonna (dried herb)	0·23	1·08	Total alkaloids
Broom tops	0·07	1·06	Sparteine Sulphate
Cinchona Succirubra	1·06	4·64	Quinine and Cinchonidine
Hydrastis Root	2·3	5·8	Berberine Sulphate
Ipecacuanha Root (Rio)	0·98	1·83	Emetine

It is evident that the accuracy and care exercised by the pharmacist in weighing and measuring drugs for use in medicine are nullified if the active principles are variable to such an extent. The obvious remedy for this state of matters is standardisation.

Closely bound up with the question of standardisation is that of the possibility of exercising scientific control over





ACONITE (*Aconitum napellus*) IN FLOWER

*Aconitum napellus*, when raised from seed, takes two or three years to flower; it is best propagated by dividing the roots; each root is biennial, but, as it has the power of forming new ones every year, the plant itself is perennial.



LOADING BELLADONNA

The yield ranges from 1-1/2 to 5 tons per acre. The freshly-cut herb is weighed in bundles and carried straight to the laboratories in a motor trolley. A portion of the leaves is dried in a few hours in specially-ventilated chambers. The roots, which are collected in the autumn, are sliced in order to accelerate the drying, and so prevent any undesirable change taking place.



the cultivation of medicinal herbs, more especially those which are found to present great variations in activity when obtained in the wild state. Hence, with the introduction of the 'Wellcome' Brand standardised galenicals, Burroughs Wellcome & Co. found it necessary, in order to obtain a constant supply of herbs of a sufficiently high standard of quality, to grow them under their own immediate supervision. The benefits of conducting a materia medica farm in conjunction with the preparation of pharmaceutical products are many. For instance :—

Expert  
supervision  
of growth

(1) A drug may be treated or worked up immediately it has been collected.

(2) Herbs may be dried, if necessary, directly they are cut, before fermentation and other deteriorative changes have set in.

(3) Freedom from caprice on the part of collectors who, in gathering wild herbs, are very difficult to control in the matter of adulteration, both accidental and intentional.

(4) The ability to select and cultivate that particular strain of a plant which has been found by chemical and physiological tests to be the most active, and which gives the most satisfactory preparations. Notable instances of these are to be found in connection with *Digitalis* and *Belladonna*.

Fortunately, suitable land was available near the 'Wellcome' Chemical works at Dartford, and there the 'Wellcome' Materia Medica Farm has been established. The following extracts from a descriptive article which appeared in the *Chemist and Druggist* of January 29, 1910, will give some idea of the nature and scope of this enterprise :—

' Wellcome '  
Materia  
Medica  
Farm

" A suitable piece of land for ' a physicke garden ' (had been chosen) on an undulating slope, with here and there a clump of trees and a strip of wild woodland, between the river and the North Downs, hard by the little village of Darenth. No more ideal spot for a herb farm could have been chosen. It has shade, sunshine and moisture, and a fine loamy soil, varied by sandier uplands. Here the firm have for the last six years been cultivating medicinal

Research  
and  
experiment



## FRESH BELLADONNA LEAVES

About to be expressed for juice and for making the green extract. It is extremely important that this be done promptly to avoid fermentation and consequent deterioration of the product. The fresh herb is gathered as soon as the sun is up, and expressed and treated before sunset.

'WELLCOME'  
CHEMICAL  
WORKS

## HEMLOCK (*Conium maculatum*)

A typical bush of Hemlock (*Conium maculatum*). The fresh leaves and branches are collected when the fruit begins to form.

'WELLCOME'  
MATERIA  
MEDICA FARM



plants under the immediate superintendence of pharmaceutical and botanical experts. The farm was established, firstly, to provide opportunities and materials for research and experiment, and, secondly, to supply the manufacturing departments with medicinal herbs of proper quality.

"A visit to the farm shows that the greater part is devoted to the cultivation of staples; but a number of plots are used for experimental crops. Among such are meadow saffron (*Colchicum autumnale*), with its pale-purple flower. Lavender, peppermint and French roses grow side by side. Senega and the unpretentious taraxacum, with its bright yellow petals, occupy other spaces. Ginseng, the root that plays so important a part in Chinese medicine, is also grown. *Podophyllum peltatum*, *Scopolia atropoides*, *Datura meteloides*, sea poppy (*Glaucum luteum*), and *Grindelia robusta*, are other plants that one does not usually find growing on a scale greater than the experimental; but the plots of *Hydrastis canadensis* are botanically and commercially the most interesting on the farm, in view of the fact that we are coming within measurable distance of the end of the natural supply from North America.

A few of the  
plants grown

"It is grown at the 'Wellcome' Materia Medica Farm in the open under perfectly natural conditions, in a little woodland dell shaded by tall elms and bramble bushes; and, in another part of the farm, under a lattice-work structure, an effort to re-create the conditions of the native home of golden seal, which is in rich, moist woods from Canada to Carolina. The growth under the latter conditions is more generous. In this case the plants are protected from the noonday heat.

Golden Seal

"The purpose which Burroughs Wellcome & Co. had immediately in view when they established this farm, *i.e.* supplying the products of the field direct to their Works, has been fulfilled, and the farm has in that respect passed the experimental stage, since they have experienced the benefits of conducting a farm in conjunction with the production of pharmaceutical preparations. On the research side, experiment goes on, especially in regard to selection and cultivation of strains which have been found by chemical and physiological tests to be the most active."





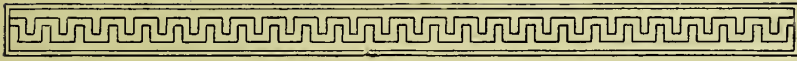
GOLDEN SEAL (*Hydrastis canadensis*)

An experimental crop of *Hydrastis*, grown under natural conditions, in a grove shaded by hedges and trees.



GOLDEN SEAL (*Hydrastis canadensis*)

The same plant under a specially-designed lattice structure, which ensures the requisite amount of shade.



## THE RULE OF SCIENCE APPLIED TO INDUSTRY

IN presiding over the Inaugural Meeting of the International Congress of Applied Chemistry May 27, 1909, H.M. King George V. (when Prince of Wales) called attention to the value of scientific research, and emphasised, in the following words, the importance of science as a fundamental factor in the attainment of industrial success:—

“ We all recognise that without a scientific foundation no permanent superstructure can be raised. Does not experience warn us that the rule of thumb is dead, and that the rule of science has taken its place ; that to-day we cannot be satisfied with the crude methods which were sufficient for our forefathers, and that those great industries which do not keep abreast of the advance of science must surely and rapidly decline.”



THE



‘ Tabloid ’

AND

‘ Soloid ’

Invented  
by  
B. W. & Co.

Are  
B. W. & Co.



They *mark* the work of

Burroughs Wellcome & Co.

They *mean* “ Issued by

Burroughs Wellcome & Co.”

They *stand* for



products



## MAP OF LONDON

The Map of London which follows is, for convenience in reference, divided into four sections. A key is printed on *page 116*.

**Section No. 1** comprises the North-Western quarter of London, and includes the West End.

**Section No. 2** comprises the North and North-Eastern Suburbs, the West Central Postal District, the City and the East End of London, North of the Thames.

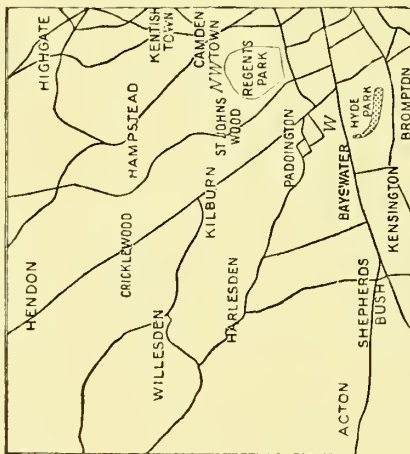
**Section No. 3** comprises the South-Western District and the South-Western Suburbs.

**Section No. 4** comprises the South-Eastern District and the South-Eastern Suburbs.

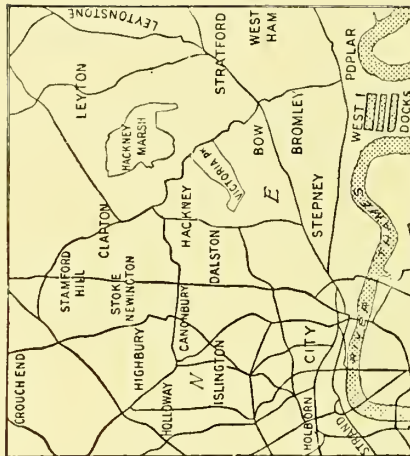
The main thoroughfares are coloured	-	-	Yellow
The Parks and open spaces	„	-	Green
The Railways	„	-	Red

*(For Map of Tubes, see end)*

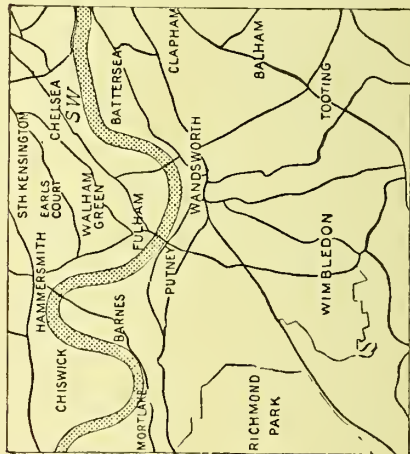
No. 1



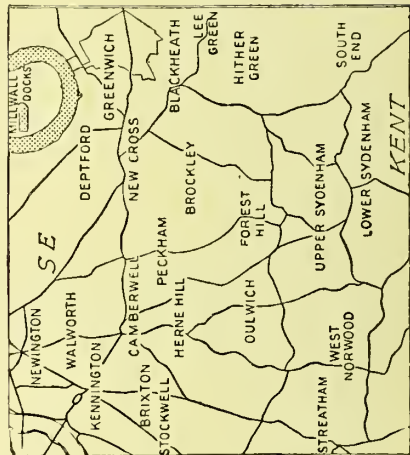
No. 2



No. 3



No. 4



See also  
notes  
on  
previous  
page

# KEY-PLAN TO MAPS OF LONDON

































## LIST OF LONDON TUBES

( see Map overleaf )

**Bakerloo Tube.**—From Edgware Road, through Baker Street to Piccadilly, Charing Cross and Waterloo to Elephant and Castle.

**Central London Railway.**—From the Bank, through Holborn and Oxford Street to Shepherd's Bush.

**City and South London Railway.** — From Euston, through King's Cross, Moorgate Street and the Bank to Kennington and Clapham.

**District Railway.**—From Whitechapel, through Mansion House, Charing Cross, Westminster and Victoria to Kew, Richmond, Hammer-smith and Wimbledon.

**Great Northern and City Tube.**—From Finsbury Park to the City.

**Hampstead Tube.**—From Hampstead or Highgate, through Euston to Oxford Street, Leicester Square and Charing Cross.

**Metropolitan Railway.**—From Aldgate and the City, through King's Cross to Paddington, South Kensington and Shepherd's Bush.

**Piccadilly Tube.**—From Finsbury Park, through King's Cross to Holborn, the Strand and the West End.

**Waterloo and City Railway.**—From the Bank to Waterloo Station.









